JOURNAL OF THE

AMERICAN INSTITUTE OF ARCHITECTS

Vol. VI MAY, 1918 Number 5

CONTENTS

		Page
Frontispiece—On the Site of Yorkship Village		216
Shadows and Straws		217
A National Organization of the Building Industry		219
The House by the Sea	*S. W. H.*	220
The Circean Shadow! III	*Richard Wallace Tudor*	223
The Architect After the War	*Milton B. Medary, Jr.*	227
The Real Meaning of the Housing Problem	*Frederick L. Ackerman*	229
Drawings Exhibited at the Annual Convention of the Institute at Philadelphia		233
Yorkship Village—A Housing Development Near Camden, N. J. (Illustrations and Plans)		237
Paper Architecture	*A. Kingsley Porter*	245
The First War Emergency Government Towns for Shipyard Workers. I. Yorkship Village at Camden, N. J.	*Richard S. Childs*	249
An American Competition for the Best Solution of the House Problem		252, 253
The Architectural Incompetence Revealed by Some Registration Laws	*D. Everett Waid*	254
Letters from an American Architectural Student in France		255
"Signs of Change"	*Sullivan W. Jones*	259
Obituary		260
Structural Service Department		261

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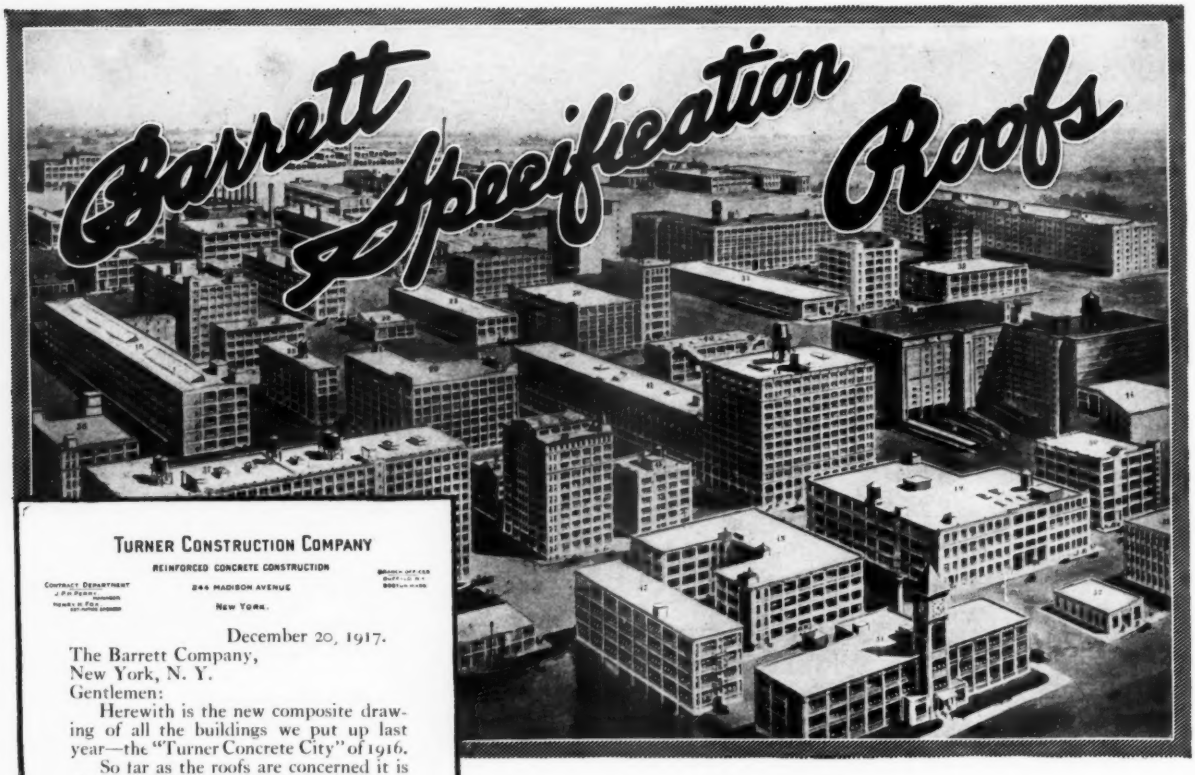

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On the Site of Yorkship Village

JOURNAL OF THE
AMERICAN INSTITUTE OF ARCHITECTS

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Shadows and Straws

THE HOUSING DEPARTMENT of the Shipping Board has now been combined with the Department of Passenger Transportation, of which A. Merritt Taylor was the head. The new department is known as that of Passenger Transportation and Housing, with Mr. Taylor as Director and Mr. Flannery as Associate Director. A. W. Smith of Philadelphia has been appointed as the executive in charge.

Other changes in the organization are as follows: Alexander Bing having resigned, his place has been taken by D. Everett Waid. Five project supervisors have been appointed, directly under the charge of Mr. Russell, as follows: Alexander Mackintosh, Brooklyn; Eugene S. Klein, St. Louis; F. Mathesius, Jr., New York City; Walter T. Karcher, Philadelphia; John W. Ritchie, Philadelphia.

Several new contracts for housing have been made since the last number of the Journal was issued. These are for Bath, Maine, R. Clipston Sturgis, architect; Portsmouth, N. H., Kilham & Hopkins, architects; Chester, Pa., (Chester Shipbuilding Co.), Simon & Bassett and Edwin S. Brumbaugh, associated architects; Chester, Pa. (Sun Shipbuilding Co.), Ernest Flagg, architect; and Wilmington, Del., Ballinger & Perot, architects.

Tentative plans are being prepared for Lorain, Ohio, Abram Garfield, architect; Port Jefferson, N. Y., Alfred C. Bossom, architect, and Jacksonville, Fla., H. J. Klutho, architect. Appropriations for these have not yet been made.

THE BILL AUTHORIZING an expenditure of $60,000,000 under the administration of the Housing Bureau of the Department of Labor has been passed by Congress and signed by the President. Few bills have suffered more amendments than this one was called upon to bear, and as it authorizes the work but makes no appropriations for its execution, there are likely to be grave delays unless Congress speedily passes, as is now hoped, a bill making appropriations direct and free from the hampering restrictions which were unwisely placed in the first bill.

The Housing Bureau of the Department of Labor has now completed its organization, which is as follows: Director, Otto M. Eidlitz, New York City; Assistant Director, Joseph D. Leland, 3d, Boston.

The Managers of Divisions are: Investigating, I. N. Phelps Stokes, New York City; Real Estate, William E. Shannon, Washington; Publications, Dr. James Ford, Harvard University; Statistics, C. W. A. Veditz; Legal, A. B. Kerr, New York City; Fiscal, G. G. Box, Washington; Production, Burt L. Fenner, New York City.

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THE ABOLITION OF THE CANON of Ethics, which stated that advertising was unprofessional, is in many ways one of the most remarkable actions ever taken by the Institute in convention assembled. That this action will be greatly misunderstood, and perhaps wilfully misconstrued, there is no doubt. Even those who have stood as the strongest proponents of the measure may not grasp the full import of the admirable report of the special committee which was printed in the last number of the Journal.

An old tradition will be thought, by many, to have been done away with, and a great step forward to have been taken. But while there is no doubt that the Institute has taken a new stand, which is indicative of a broader spirit and a more democratic tendency, it must not be thought that the spirit of tradition has been discarded. It was born in a very simple way and was cherished by a group of men who held high professional ideals and who had an instinct for good taste which may not perhaps be so prevalent today as then. The mistake they made, if mistake it was, was to enunciate their belief in a canon of ethics. Good taste cannot be canonized. It may be acquired. It should be a part of any professional equipment. But in expressing the conviction in a Canon of Ethics which was eventually transformed, perhaps more or less unconsciously or thoughtlessly, into a recital of punishable offenses, the Institute assumed an untenable position.

At first this did not so appear. Advertising, as a word related almost entirely to business, held a very limited connotation. It related itself almost entirely to space in the newspaper or magazine. But in time, as knowledge, experience, and skill were applied to commercial advertising in a successful effort to develop it as a business force, it soon became clear that there were many and various methods of advertising. Originally confined, as a business, to the placing of space in newspapers and periodicals, it began slowly to take the form of the writing of copy, the preparation of illustrations, the study of markets, the analysis of business, in order to increase sales and open new markets. Thus, through the operation of an inevitable law, those who dealt in advertising or advertising advice, and who sold that service to business men, began to study other methods and devices. Some of these were vicious and reprehensible. They took the form of subsidizing the news columns of the press, of exerting influence through political agencies, wheedling buyers with coupons, stamps, and tips in all forms, deceiving the consumer with samples which frequently misrepresented the articles described. Others were good. They were founded upon psychological observation of influences which determined choice, and through this agency business has been broadened and its standards raised.

But advertising as a word thus began to stand for a variety of selling forces which could scarcely be enumerated. The architect, obliged in some manner to make his name known, could no more escape the utilization of some form of it than he could escape the use of the post for carrying his letters. In short, the word advertising was no longer definable. It had gone far beyond the use of newspapers. The question became one of kind and degree. The Canon of Ethics was lost in a sea of doubt and absurdity. What was advertising? To adhere to the old definition and punish men who caused their cards to be inserted in country newspapers was a logical injustice, so long as others who employed less direct but more subtle and effective methods were left unpunished. The Canon, as a mandatory guide to good taste, had long outlived its usefulness. But it will be a sad error if architects fall to thinking that the spirit of the Canon is no longer worth keeping alive.

Contrary to the inaccurate statements which have appeared in various publications, the Institute does not advocate nor suggest nor favor advertising by its members. It takes no stand whatever. It leaves men free to exercise their good taste, if they have any. To those who have it not, it will neither mete out punishment nor reproof. Its action in convention is an acknowledgment, perhaps a little long delayed, of the belief that it is better to have men bound by honor than by a canon. The future will see this principle much extended in the Institute, unless we are greatly mistaken, for it is, after all, only upon honor that a profession can survive.

AN AMERICAN COMPETITION for a solution of the housing problem is announced on pages 252 and 253 of this issue, and an invitation is thereby extended to the architects of the United States and Canada to join in a fundamental study of a problem which is of the most vital importance to the social and industrial future of the whole western hemisphere. It is a new kind of competition, and the names of the jurors who have kindly consented to serve, afford an ample guarantee of the broad constructive principles which will guide their judgment in awarding the honors.

Associated with the Journal in this competition is the *Ladies' Home Journal*, of Philadelphia, which will join in the publication of the winning theses and plans.

A National Organization of the Building Industry

THE PROPOSED FEDERATION of the building industry, reference to which was made in the last issue of the Journal, has moved forward another considerable step during the interim. The Institute has issued a call for a conference to be held in New York City on June 14, to which there have been invited representatives of all the leading national and local organizations which are in any way connected with the building industry. The call was as follows:

"The American Institute of Architects believes the time has come when steps should be taken toward federating the whole building industry of the United States, in order that the Government may have the most intelligent support and powerful coöperation of all the interests involved.

"The wartime need of such action appears to be immediately imperative, and it would seem that the first and paramount duty of the building industry is to place its knowledge, skill, and equipment unreservedly at the service of the nation, involving as it does elements and factors of the widest diversification. That service can only reach its maximum of efficiency through intelligent adjustment of all the vital parts. The building industry also owes it to itself seriously to study from the broadest possible viewpoint the inevitable disorganizing influences of war which have already been felt, and through such study to determine what steps can be taken toward bettering conditions and minimizing any further unnecessary disorganization.

"With a view to the possible formation of a national organization, which might assume the burden of this tremendous undertaking, the American Institute of Architects accepts the patriotic duty of initiating the movement. To this task the whole building industry should subscribe. As a first step the Institute invites you to send a duly authorized and accredited representative to a conference to be held at the Engineering Societies Building, 25 West 39th Street, New York City, beginning at 10 A.M. on June 7, 1918, for the purpose of discussing the situation and determining the method and providing the means whereby such an organization may be created. This invitation is being issued to national and important local organizations, which represent the building industry—whether technical, manufacturing, contracting, or labor.

"We will greatly appreciate your prompt notification of acceptance of this invitation, and at the earliest possible moment the receipt of the name of the representative whom you will send.

"Please address all communications to the Executive Secretary, the American Institute of Architects, The Octagon, Washington, D. C.

Cordially yours,

THE OFFICERS AND DIRECTORS OF
THE AMERICAN INSTITUTE OF ARCHITECTS.

By THOMAS R. KIMBALL,
President."

Whatever may be the extent of the changes which have been wrought by war in the traditions, customs, and methods of the building industry, and however great the monetary profit which has accrued to one part of it, or the loss which has fallen to another part, there can be no denial of the necessity of a greater unity within the industry if it is to survive as an efficient wheel in our economic future. By efficient we mean something more than speed or cheapness. Admirable and necessary as such factors may be and are, the whole building industry today must stand the new scrutiny of a world which will ask less of individualistic performance and far more of collective results. Even under a political democracy we have not succeeded in ordering the physical developments of our country any better than the older countries of Europe, and in many ways not as well. Measured by the triumphs of our building skill, we may well lay claim to brilliant achievements, but measured by the degree of congestion which our building operations have brought to our cities, measured by the colossal sums which must now be spent in undoing the mistakes of the past by solving the fast increasing problems of transportation, traffic, health, sanitation, recreation, and a national development in which we shall lay more stress upon the kind and character of human life than upon the products it makes and consumes, we may well pause and

ponder upon the fact that the race is not to the swift.

It may be said, truthfully, that the paths of the building industry are marked out by laws which are not under its control. But, instead of awaiting the final verdict of the nation, it would be far better if the industry could itself conduct a searching investigation into the economic, civic, and social ugliness which it helps to bring into being and to maintain, and then to appeal to the nation for a change in those laws which force the tremendous national waste of fire, of disease, of blighted development of hundreds of thousands of children, of loss in production as well as in consumption, and of a national scale of life which before the war, might perhaps have been marked as descending rather than ascending.

We have not organized the building industry on the democratic basis, and now that this country solemnly has reconsecrated itself to the principle of democracy, there can be no worse traitors than those who refuse to apply that principle in all things.

The coming conference holds great possibilities. Animated by a spirit of patriotism, of unselfishness, and above all of democracy, it can yield a result of great good, not only in these days of stress and doubt, but in the better days to come, to which the building industry has in its power to make a contribution than which none is more needed.

In war service, the building industry has already demonstrated what it can do in the way of speed. Its services have been the foundation of our program. The nation cannot but be appreciative. But the great lesson learned by a result expressed in terms of public welfare must not be lost.

The House by the Sea

I. THE SAINTS ELIZABETH

The morning after my arrival I waked, having spent a fitful night, in a strange, narrow, cramping bed—my generous four-poster at home does not fit one for the hospital variety—and looked about the unfamiliar room. A damp wind blew in the open window; outside, beyond a screen of elm trees, lay a desolate prospect of dirty fog and sodden marsh. It was quite still, and the foghorn, of which I had been dimly conscious all night, joined the steam-radiator in a dreary duet. No open fire; no pretty Agnes with my dainty tray. "You have been spoiled," I said to myself while tidying my hair before the glass; "crawl into bed, wait for your breakfast, and make the best of it."

A knock at the door; a laden tray jutted into sight beyond the screen, and Elizabeth followed it. Ghost of childhood! Mary, our old nurse, stood before me. I felt again convicted of the awful crime of being late to breakfast, especially as Elizabeth would not smile, but put down the tray deftly and left the room at once. An old-fashioned, well-trained Irish servant. Irish!—the very epitome of it. In spite of the neat black-and-white print dress, I saw her running barefoot along the bogs, a basket of peat on her back, her heavy black hair straggling in the wind over her face, with its fine eyes, short little nose and longish upper lip. She might, again, be one of Lady Gregory's players, ready for pathos or comedy.

As I ate my breakfast, I thought, "Surely there is something to be had out of someone as distinctive as that." Many weeks we have been friends and this is what has unfolded, while the carpet-sweeper and the duster have not been neglected and fresh linen has gone on bed and dressing-table. When work was slack many a little chat has accompanied the supper tray. Don't judge people by their faces. Elizabeth's voice is not Irish; it is soft English. And it speaks good English too; no trace of cockney. For all her Irish looks and her Irish mother, Elizabeth has an English father. She reads everything she can find—the *Atlantic*, poetry, Masefield—a jump to the "Irish R. M.," and we became better friends than ever over old Lady Knox, pinned up with her diamond brooches, Flurry and the Major's ladder. The first Sunday morning that she brought up my tray, I knew by her black dress that she had been to the church on the hill—St. Mary, Star of the

Sea—and I, who have not been to church for months, cried out:

"Elizabeth, what was the gospel?"

"Oh, Miss, a sower went out to sow;" and with dignity and intelligence she repeated the parable and the gist of the priest's short sermon. Thus, each Sunday I have had my spiritual food and have given thanks.

The weather, the view and my spirit cleared up, and neither of us let any beauty of nature to be seen from my two windows go unsung. Of course, we have talked the war daily. Elizabeth is an ardent champion of the British Army, with an unshaken faith in its prowess and determination. It seems that she was born on the strength of the 48th foot. Her father was a soldier from his boyhood; as a lad he served in the Crimea.

"Now don't tell me, Elizabeth, that he was nursed by Florence Nightingale!"

"Indeed he was—not wounded but very sick. He has a wonderful picture of her. Twenty-eight years he served in the British Army and he can tell stories of India as good as any Kipling tells.

"Oh, Miss, this war is killing him and I long to go home to see him once more; but he knows I am doing right, for they need the money I can send them. There are little children of my sister's. The husband is gone to the war; wounded already. And who knows if he will ever come back! I would go to them, but it wouldn't help matters if the Germans got the ship I went in. I'll just not think of it." She talks of her father like a lover.

A few days later she came into my room with set face and took out of her apron pocket a black-bordered letter marked, "Opened by Censor."

"I want you to read it," she said. It told how her father had died peacefully, having made his peace with God, reciting the act of contrition. A newspaper cutting described his service and his medals and how a firing squad of two hundred men followed the soldier, Wyndham Painter, to his grave to fire the last salute.

"It is a great honor," said Elizabeth. I have heard many an Irish girl wail and moan and keen at news of death, but not so a soldier's daughter.

For two tense days she thought she ought to go to her sister; and my imagination pictured the little woman all the dreary, dangerous, winter journey. But the violence of enemies was naught to her; she only dreaded a night in New York. A visit to the steamboat offices seemed to bring us into close quarters with the war—passports, identification photographs, war tax, neutral ships, mines, submarines, expense. Then Elizabeth steadied herself; the traditions of the British Army prevailed; her duty was in the munitions department and, with one bitter cry against her poverty, she settled to her work. Her dignity was quite beautiful to watch, and she little knows how much good she has done "her patient." What turns of fate, what humble self-sacrifice have left my Saint Elizabeth an exile!

And the other Elizabeth—"Betty"—a visitor where the rest of us are patients, well instead of ill, young while most of us are middle-aged, "a sunshine in a shady place," a breath of fresh air, a happy melody. Her hair is a glowing spot of color, red—red and wavy; her skin is white, her teeth are whiter, her eyes and mouth are sweet and generous, her body tall and straight and ample, her arms and young breast just made to hold a little child.

Betty can sew and weave and cook; she can sing, and dance all night at a ball. She loves pretty clothes and jewels; she burns to learn, to serve, to ease the lot of the poor and suffering. Beauty stirs her; goodness uplifts her. She has a lover who comes out of the great West just to look at her, leaving a trail of sweets, books, and roses, and she shakes her head and smiles. She is the cherished daughter of a very rich man; she is deep in love with a poor one. She is Saint Elizabeth with the loaves and roses in her dress at the same time.

II. THE PLEASURES OF LISTENING

All my life, when lying awake at night, I have told myself stories, but never one yet that I felt moved to put on paper. The only virtue in them is that they are so dull they put me to sleep. Sometimes I have so intensely visualized the house in which my people lived, that I have got up to draw a plan of the rooms to see if the garden and the driveway could be where I saw them with my inward eye, but to the flimsy beings of my stories names and faces refused to stick.

Since I have been a prisoner and a captive and have had to lie so many hours flat on my back—and you know that does not mean propped up with pillows comfortably reading a novel—I have found reading, knitting, writing, very difficult and many days quite impossible. When you lie flat on your back you tend to look at the ceiling. I remember, when I was a little girl, a stain from an old leak on the ceiling of my room looked like a fish jauntily swimming in the sea. It always enchanted me, but here, alas! all is fresh and white and, like the Bellman's Map, "a perfect and absolute blank." Something had to be done to keep Satan from idle hands and thoughts, and so I took to listening.

You know, the waking up of a big house is quite fascinating. A door opens, a window shuts, a bell rings; far off in the lower regions someone turns on a faucet. Steps are heard, brooms brush, tables and chairs are moved, shades run up, dishes clink, someone shovels snow from the walk outside, voices begin, and the whole thing is in action—and the footsteps! I feel that I could write an imagist poem on footsteps; their poems so often consist of lists of things, like this:

FOOTSTEPS

The sound of the little
Feet of the little
Energetic nurse
Like steel trip
Hammers, shod with O'
Sullivan's heels of
Live rubber.
The languid step
Of the little lady,
The elephantine pad
Of the fat nurse,
Indolent, heavy.
The triad step
Of the lame man
With his stick,
The firm, even tread
Of the doctor.

The patter of the dogs' feet
On the boardwalk;
Light steps of busy women;
Shuffling steps of workmen;
Steps of people carrying things;
Steps of people wearing squeaky boots;
Steps of people taking little walks;
And steps that beat on an agonized, aching head
like kicks!

Listening has its dangers, and there are accursed sounds that must be ignored—the Victor singing ragtime, the vacuum cleaner, steam radiators, and sounds as old as time and civilization—the clatter of women's tongues and the slamming of doors. The pleasures of listening, however, come when the busy house quiets down in the afternoon and through the always-open window come the sounds of out-of-doors. The whir of an electric car and the passing of a train sound far away and almost idyllic. Sometimes a bell, a steam whistle, or the tooting of a tug remind one that the harbor and the town lie over the hill. The heavy snow keeps the motors away but now and then a cart passes or a sleigh with its bells. The gay voices of the children coasting, the yaps of the happy dogs hunting on the marsh, come in on the afternoon sunshine. The man drives up with the evening mail and the boardwalk creaks in the cold under his feet. The crows caw in the early morning and a little chickadee calls at twilight.

I have loved all the sounds of the snowstorms—the driving sleet against the windowpanes, the gay, crisp resonance of the shovels in the blue and white mornings when the storm is gone, the cries of the driver urging the old white horse to pull the snow-plow along the untrodden road, the rush of the avalanches off the roof, the drip from the eaves and the brittle clatter of the big icicles falling on the veranda when the thaw comes.

I cannot begin to tell the songs of the winter wind, of the trees and of the sea, the thunder and roll of the surf, the rattle of the stones on the beach vainly pursuing each wave. Many days it has been so calm that only a suave and heavenly sound of little lapping waves has reached my longing ear. When one has tried to live on terms of amity with the hell-fiends that race day and night on a city street, imagine the joy of putting out your light early to lie flat listening to the sound of the sea in the frosty night.

I have even enjoyed the foghorn in thick weather, with its blaring, hoarse "Beware! beware! ye little coastwise craft;" and one morning at dawn, when the wind had dropped, I had a strange feeling of unrest, of vague alarm, and the cryptic word "Aberbrothrok" kept repeating itself in my mind. Then the electric contact came: "It's a bell-buoy!" The Inch-

cape Rock, Sir Ralph the Rover, and the Abbot of Aberbrothrok! And now, when wind and sea are right, I hear it often, always with that sense of danger and warning. And suddenly one day came the most exciting sound of all that brought me out of bed to the window in a flash, the sound of an aëroplane on a trial trip from the factory by the harbor. I could not see the great bird, for the house cut off my view, but I listened with all my ears. With the simile of a bird in mind, you think at first the sound is the beating of the creature's wings, but it is the terrible throbbing of its heart; and, with it, my hole-in-a-corner little room was in touch with the great war. Perhaps that very airship, guided by some young, ardent, virile spirit will soon be flying the tragic skies of France. Then I gave up listening and took to remembering Paris *en fete*—the great green field of Longchamps massed with troops, color, movement, the thrilling rush of men and horses, the call of bugles, the unforgettable sound of artillery at the gallop, and overhead in a perfect summer sky, aëroplanes.

But beyond all is this marvelous winter stillness. One night the silence and a bright patch of moonlight on the floor lured me to the window. There was no least breath of wind. Not a land light showed, not a sound came from the big house. The snow-covered marsh stretched quiet and gleaming before me, and beyond the rampart of the beach lay the sea—so still, I swear it did not stir about the black mass of the sleeping rocks. The sentinel bell hung dumb in its buoy; the light on the distant lightship burned far and steady; the few stars shone high and lonely; and oh, the trees—they stood there in the moonlight in quietness and wisdom, while the great elm tree flung a shadow equal to itself in beauty on the cold white snow. Silence—mystery—questioning! It was like looking on the beautiful face of the dead. I could not stay, but drew noiselessly away to my bed, to lie there, still, as all else. S. W. H.

The Circean Shadow! III

By RICHARD WALLACE TUDOR

WE have already noted how it is that we develop a set of undemocratic reactions by introducing the student to the region of architectural thought through forms expressive of social and political traditions which run counter to the currents of modern times; how we narrow his concept of vocational activities and responsibilities by an overemphasis upon the value of form and proportion; how we discourage responsibility in thinking by the imposition of programs and judgments; how the student is given no opportunity to check the result of his study with actual situations in the fields of reality; how we suppress his inquisitiveness; and how we limit his field of interest to the needs or desires of special groups within the community rather than extending it to include the affairs of life which are most fundamental; how all-important it is that the architect (and hence the student) take a responsible part in the development of our entire social and physical environment, for buildings are but details which must take their proper place and perform, likewise, a proper function if our environment is to express other than a chaotic jumble of individual cross purposes.

The statement thus far has been an attempted analysis—a destructive analysis. Little of our educational structure remains standing; not even the foundation remains, for primary education has been found wanting.

How shall we build the new structure? What old materials shall we use? What form shall it take? This is the problem—the tremendously important problem—*and we must decide.*

But we *must* have a foundation. Therefore let us start with that. How shall we prepare that? Shall we continue to press our futile suggestion that the students in our primary and secondary schools be taught drawing and modeling and design—that they shall be taught "fine art"? Will that really help?

It will not so long as these subjects are taught in the dry, frigid, academic atmosphere of the formal method which makes these activities appear as perfectly useless operations. Such subjects would but add to the burden of useless

baggage—become so much junk—which the student brings to the architectural schools.

But what is education—general education? Do we know? We do not know, else we would not make our futile suggestions. Dr. Dewey has answered the question; in "Schools of Tomorrow" he has built our foundation. Why do we not consider what he has to say? In terms of educational technique he has laid the foundation of a new world, a democratic world in which there is contained the hope of a rebirth of art and architecture.

If we are *really* sincere in our desire to achieve within our field, we will study well how it is that he proposes we should reorganize the education of today. If we are *really* sincere, we will make the advocacy of the principles which he enunciates the central theme of our educational effort.

Look the matter squarely in the face. What has our system of general education produced? A sordid and ugly chaos of industrial stupidity; a pyramid of conditions inducing unrest; a world in which nearly the sum total of human effort is lost in that it neither satisfies in itself nor produces things physical which satisfy.

With an adequate background of primary and secondary education established, the problem of teaching architecture would be relatively a simple matter. But that background does not exist—nor will it exist for a long time. But we must have that background; therefore let us demand it—and get it.

But how shall we teach architecture?

How many of those teaching architecture have considered thoughtfully, seriously, earnestly what is meant by "teaching"—in a real educational sense? How many have endeavored to formulate a philosophy of education? How many have considered the philosophy of Rousseau, and read and reread and pondered over that work, pregnant with new life, "Democracy and Education"?* Shall we call for a show of hands?

How many have really attempted to think this problem through to the end? What, for example, is meant by "aims in education"? Do we know? I do not think we do, for I do not recall having heard anything at all about this very important matter at our conventions, nor do I recall having observed a serious treatment of this theme in our architectural papers.

We talk and talk and talk about education, but it is all about "fine art" and "degrees" and medals and credits and scholarship and exhibition and standardization; but of how we teach, how we *should* teach—what we teach, what we *should* teach—what are our aims, what *should* be our aims—of these important matters there is little said.

The whole unvarnished truth is that we are teaching architecture just as we do a thousand and one other things—to no particular purpose, without aims, without a philosophy.

This brings us again to the beginning. What should be the aims in education? What in particular should be the aims in architectural education? Much that has already been suggested anticipates what is now to be stated. We must define more accurately the aims, for it is upon our definition that we must reorganize the technique of teaching.

"An aim implies an orderly and ordered activity, one in which the order consists in the progressive completing of a process." In order that there be an aim in education, the conditions within the school must be such as to stimulate the student "to look ahead to see what the outcome of a given activity is to be." It is this foreseen end, appearing as an aim, which should give direction to an activity.

"We can definitely foresee results only as we make careful scrutiny of present conditions, and the importance of the outcome supplies the motive for observations. The more adequate our observations, the more varied is the scene of conditions and obstructions that presents itself, and the more numerous are the alternatives between which choice may be made. In turn, the more numerous the recognized possibilities of the situation, or alternatives of action, the more meaning does the chosen activity possess, and the more flexibly controllable is it. Where only a single outcome has been thought of, the mind has nothing else to think of; the meaning attaching to the act is limited. One only steams ahead toward the mark. Sometimes such a narrow course may be effective. But if unexpected difficulties offer themselves, one has not as many resources at command as if he had chosen the same line of action after a broader survey of the possibilities

* "Democracy and Education," by John Dewey. The Macmillan Co., New York City.

of the field. He cannot make needed readjustments readily."

We should ponder over this, for it seems to me that it discloses the reason why the architectural profession is groping about in an endeavor to adjust itself to the present.

But what sort of aims should we have? "The aim set up must be an outgrowth of existing conditions. It must be based upon a consideration of what is already going on; upon the resources and difficulties of the situation . . . . An aim must, then, be *flexible;* it must be capable of alteration to meet circumstances. An end established externally to the process of action is always rigid. Being inserted or imposed from without, it is not supposed to have a working relationship to the concrete conditions of the situation."

As I look back upon the days in school, I recall vividly the hours and hours spent in "presenting" the elements, the tombs, the mausoleums, and how all this work, and the succeeding problems, headed straight toward an achievement expressed in ideas associated with magnificence—the region of the Prix de Rome. Occasionally there was a short excursion into the field of reality, but this was considered by our teachers and ourselves as a humdrum, uninspiring sort of place, for, seemingly (and as a matter of fact), it had little to do with the goal for which we were striving. On and on we were led into that region of dreams, the land of the great monumental baths, the pantheons, the great *établissement* for the reception of royal guests, into the land of unreality.

The days, the weeks, the months spent over the paper silhouettes, the "points de poché," the greys, the blacks and whites, the indications, the mosaics, and the wonderful renderings! What was it all about? What *is* it all about? In terms of the present, the future, in terms of social value, in terms of democracy—I do not know.

It was into this world of magnificence, this world of sumptuousness, this world of unreality that we were led. Our hope was to achieve the magnificent and to stage it in a setting borrowed from the past. This was the mark toward which we strove, toward which we are striving. Has this effort been effective? Let each answer that question in the light of his own experience, in terms of his own environment, in his interpretation of the significance he attaches to the increasing volumes of discontent voiced by members of our profession and by the attitude of the public toward the profession as a whole.

So the cause of all this questioning and the attitude of the public toward the profession is very largely the direct result of an education which moves forward upon a single track—toward a goal which has no relation to reality. Our education is but an academic formula without real or vital living aims.

It is alone in the school of experience—the years of practice—that the architect, still a student, is presented with real situations, and it is only he who in school silently submitted in rebellion to the rigmarole and to the imposed academic objects (miscalled aims) who realizes that his problem can only be solved by a new formula. It is only he who searches for the new formula and acknowledges his utter inability to think his way into a real, an actual situation with which he is confronted and to think his way out with a real or actual solution, who fully realizes his impotence and the cause.

But impotent though he may be to organize his program and his solution, his inquisitiveness, his rebellious spirit, his actual contact with a living world opens up new vistas—carries him into a new region of thought and creates within him a new ideal.

And this new ideal, this new region, is not that of the great baths, nor the palaces, nor the pantheons nor the great *établissements*—that seventh heaven of the architectural school. It is a totally different place; there is an orderly arrangement of the forms, but the forms are of a different sort—there exists a totally new set of values by which forms are appraised. Through the vista thus opened he sees—vaguely perhaps—but he sees as the goal of his endeavor, as the aims of his calling, the crystallizing forms expressive of the democratic motif.

For his contact with the world of reality, with real situations, has stimulated him and has given him an insight into the new techniques which he realizes that he must adopt.

And so he realizes that the old ideals of architectural education—class conscious and narrow, revolving as they do around custom, tradition and authority—belong only to a static civilization.

He realizes that "in our world only those will

conquer who can understand." He also comes to realize that only those can understand who check their acts and thoughts in the world of reality. Above all, it comes to him that life is not something which he is merely to interpret, but something to be shaped; that architecture must be more than a passive, interpretative expression; it must be dynamic; it must enable us to live forward in the midst of confusion and complexity. And so it is that a new light dawns and in that new light he sees in broad outlines the aims of a forward-looking education.

And among those aims there stands in the forefront that suggestion by Sidney Webb: "and above all and supremely, it (the profession) ought to regard it as its duty to claim, in season and out of season, that the services which the profession can render to this community should be available in quantity sufficient to enable every person in the community to get the benefit of the service."

Nor should the aims of an architectural education omit those which relate to associate activities. To isolate the students in architecture from the students in collaborative activities is but the act of erecting formidable barriers in the way of closer collaboration in practice. To teach landscape architecture, decoration, or sculpture in isolation and apart from architecture is to render worthless much of the teaching. In reality, the central aim common to all contributors toward interpretative expression of ideas in form and color is *unity of expression;* that such are among the aims of education should be made vivid through *collaboration in the methods* of education. *To think in terms of collaborative effort—to use subject matter collaboratively in educating those who must join hands in the production of an adequate environment—is an essential first step which cannot be omitted, for if we omit it we shall continue in our failure.*

And there is still another tremendously important factor in the production of architecture which must be recognized and considered while the mind is plastic, while the foundation of an understanding of art is being laid.

We are living in an intensive industrial age; we question its justification; we condemn the machine and the intensive processes of production; we carry into the school a sweeping condemnation of the physical products of this industrialism. *In so doing we make a fatal error, and we prove that we fail to recognize what constitutes art.* Art emerges, and ever will emerge, from industry. Instead of fostering the idea that industries are to be condemned, we should develop the idea that our future art must be derived from the very industries which we now condemn. This false attitude, fostered and developed in our schools, instead of bringing us nearer to achievement, carries us constantly further and further away.

It is only through a sympathetic understanding of the social and economic phases of our processes of fabrication that it will be possible for the architect constructively to criticize and point the way toward the development of industry and industrial conditions which will make the realization of a rational art and a rational architecture possible. We who have had experience in the world know that the labor problem, as it relates to production, is a fundamental problem which has somehow got to be solved. Why in the name of sense do we shut these problems out of the university? Why do we turn our students loose upon the world without the slightest inkling of the significance of these fundamental problems? Are we afraid to deal with them?

Why do we send our prize students to Europe, to Paris, to Rome? For what purpose? For what aim? What are they told to do? What *do* they do? Upon what is the emphasis, the greatest emphasis, placed? It is the past—as if Europe contained only the remains of the past.

And it is also form—forms of the past—as if Europe contained only forms. Why not send our students to Europe to study life, to gain a knowledge of social and economic conditions as they affect art and architecture? Why not send them to study the expanding functions of government as they affect art and architecture? Why not send them abroad to study the future?

We treat Europe (academically) as if it were a tomb, a mausoleum of art; we send our students to pick the lock if they can.

And so they miss completely the most important things: They return having failed to grasp the architectural significance of the new social and industrial order that is emerging and the expanding functions of government which are developing and which will profoundly affect the entire physical environment in which men

live in Europe. (I have no reference to the war but rather to the stream of tendencies witnessed just prior to the war.)

The student returns with his portfolio of sketches and measured drawings (valuable in their way), rather further removed from the field of reality than when he left. America appeals to him as more raw and crude. He realizes this, for he has eyes. But why is it so? By what social and political technique has Europe achieved a better physical environment in recent years? He does not know.

He has been taught to look at things, and not into things; and so he returns without the slightest knowledge of how Europe, by collective action of a social and a political nature, is evolving an art and an architecture.

Such are the essentials of the problem. How shall we reorganize the education of the architect?

There is the problem of primary education to consider; to this we must direct our attention, for it is hopeless for us to attempt achievement with the background now afforded by the primary schools. There is the tremendously important task of making vivid more rational aims. There must be within the school a definite goal of endeavor which gives direction to each act of the student, and this goal must represent the aims of forward-looking men—with the aims of the new democracy. We must introduce the student to his professional work in such a way that from the outset there will never be any confusion in his mind as to the relative value of form and function. We must so organize the work as to develop responsibility in thinking. We must give him an opportunity to check the results of his study, and lastly, we must extend his interest to include affairs of life which are fundamental.

(*To be continued*)

The Architect After the War*

By MILTON B. MEDARY, JR.

THE only consideration which led me to consent to read a paper to the convention was my firm conviction concerning the obligation of the architect to see that his special knowledge of planning, as it affects the health, morals, and general life of a community, shall not only be made available, but that the benefits resulting from its application shall be guaranteed to the crowded populations of our cities. Some work along these lines is being done, partly by boards of health and partly by privately supported housing and social working organizations, while our profession, as a whole, although best qualified for leadership in such a program, is content to confine its activities within a small circle representing a group of clients able to pay for what most of them regard as a luxury.

In this respect we compare unfavorably with the medical profession, whose societies and organizations are known to the public, not so much by reason of the success of their individual members in serving their personal patients, but by reason of the demand of these societies that the whole population shall be guaranteed the advantages resulting from medical research, and, further, that established medical standards shall be made compulsory when the health of the community is at stake.

"The Architect after the War" is the title assigned for my paper, and its form suggests something in the nature of a prophecy, and I want to make it clear at once that this is not the time lightly to attempt a prediction of what may lie beyond the most solemn hour in world history, when the destiny of human institutions still hangs in the balance. Down through the centuries men have struggled to achieve that destiny, and the results of the struggles of countless men are now in jeopardy.

This is a world war, not so much because of the magnitude of its operations, but because men must fight once again for all they have inherited from Yorktown, from Runnymede, and from the shores of the Sea of Galilee. On one great altar, stretching from the North Sea to the Alps, millions of men are being sacrificed that this inheritance may not be lost.

Let us, then, rather examine ourselves in this hour, when all selfish interests are hushed, with the hope that we may learn something for our guidance in that new era when we hope we may emerge again into the clear pure air of a new Easter dawn, and when the least we may do is to cherish and preserve those ideals which are being defended for us at so great a cost.

Architects had begun to speculate upon the relation of their profession to the social order and upon ways and means of informing the laity of the value of their service, when the outbreak of the great war brought with it an almost immediate conviction that in the popular mind the profession was associated with the luxurious, or at least the unnecessary, and that as long as real work was the order of the day, the services of the architect had no place in it. This popular judgment must form the basis of any analysis of ourselves if we hope by such an analysis to

*Read at the annual convention in Philadelphia, May 26, 1918.

qualify for a more worthy estimate of the value of our services.

To attribute it to ignorance and offer the timeworn suggestion of "educating the public" only restates the question in other forms. Why is "the public" ignorant? and how do you propose educating it? Incredible as it may seem, it has been seriously proposed that the profession should buy space in the public press and explain that architects are a misunderstood group of men, vastly more important than anyone outside of the profession has even guessed, and that we crave a greater appreciation of our merits. Such a maudlin lament reminds one of the typical novel of half a century ago, written for the consumption of homesick boarders in young ladies' seminaries, in which the heroine was invariably an anemic person in her early teens, the pattern of perfection, but always misunderstood and unappreciated by everyone except the said young lady herself. Groups of men, like individuals, are judged by what they do rather than by what they profess, and I think we may answer the question, "Why is the public ignorant of our merits?" with the statement that, with few exceptions (and these exceptions which prove the rule), we have given little to that 90 per cent of the public which makes the real nation, little which vitally and sympathetically touches their own lives or attempts helpfully to interpret their own desire for self-expression.

In our love for our art, we have thoughtlessly, but none the less selfishly, ignored the only ground in which we might plant that art and make of it a real and living thing, rather than a hothouse plant which only the few may buy. Good architecture must once again be made a wild flower growing naturally along every roadside in America, and to make it so is our task. All honor to the little groups of men in cloistered cells who kept the treasures of classic learning through the Dark Ages, but that trust would have been of little value had it not been made again the common property of all men. This was the great service for which we know them and from it we should learn that our profession may not remain a cloistered priesthood serving only our own goddess.

In suggesting service as the great common ground on which men come to know and honor each other, and on which architects may learn as well as teach, I am offering nothing new, but am rather trying to give some emphasis to what is being so well said by thinking men everywhere. One of the heartening signs of the times is the fact that men are asking themselves where they stand in relation to other men. The current literature of the day turns again and again to this theme, and from that literature I am bringing to your attention three articles published comparatively recently as worthy of emphasis. One dealt with another profession altogether; another touched on architecture only in a secondary way and in criticism of still another group; the third contained helpful suggestions to the architectural profession. I refer to the article entitled "Peter Sat by the Fire Warming Himself," published in the *Atlantic Monthly*, an editorial from the New York *Evening Mail* republished in the Journal of the Institute, and the paper by Mr. Sidney Webb read to the R. I. B. A. and also republished in our Journal. The first of these was a criticism of the part the clergy have taken in the work for which their profession should qualify them for leadership, and the lesson which it attempts to teach is of equal value to our profession without regard to the justice or injustice of the criticism as applied to those it was directed against.

Our profession has served the great corporations, the dispensers of public funds, and the private clients who are able to pay for such service. What of the other 90 per cent of the American people? What have we as a profession done for them? Where have we touched their lives closely enough for them to know or care about our work? Like Peter, have we not sat by the fire warming ourselves while medical men, social workers, and amateurs have been demanding better living conditions and have found that at the root of the problem lie questions of planning which we are peculiarly fitted to solve? From these workers have come housing laws and housing standards offered and enacted into law in an effort to protect the victims from the results of bad planning. Many of these laws are clearly faulty. What have we done about it? Have we as a profession offered anything better in a field where we should be leaders rather than merely critics?

The editorial in the *Evening Mail* dealt with the control of loans for building operations in such a manner as to prevent the building of healthful homes in open outlying districts, at such a rate as to empty the loathsome dens in which unborn generations must be condemned to live and grow up into criminals or unfit adults, in order that investments in such properties should not suffer. The *Evening Mail* referred to the ingenuity of the architects as applied to single huge structures housing thousands of people, while, at the same time, guaranteeing healthful surroundings, and asked why such a guarantee could not be secured to those who need it most. This is more than an academic question at the moment, as it is deeply involved in the discussion revolving about the proposed house-building operations by the Federal Government. At a recent convention of the National Housing Association it was several times intimated by speakers that too large a number of good houses might result in emptying the worst ones in the community after the war, thereby requiring the owners to rebuild them or suffer a loss of income. Here is a challenge worth accepting. If the building of houses as a war necessity can at the same time rid a community of its worst houses, is not this a reason for their construction just as vital to the nation and its future as their present need? And why may we not frankly and fearlessly take up the challenge?

Mr. Sidney Webb, among other things, in his paper pointed out the plain duty of the profession in this field: First, that the architect, by virtue of his training, was under an obligation to bring to the attention of the governing authorities all conditions which might be improved by intelligent planning, and particularly those where the health and happiness of the population were at stake; and, second, after having so informed such authorities, to inaugurate and conduct a public campaign demanding the establishment of standards for the benefit of all. This, coming from architects, may seem interested, but who would question the motives of a national medical association demanding that the health of the nation must be safeguarded, even though it required the public employment of thousands of physicians and the setting aside of

private interests or investments? You and I know that the physical and moral health of the nation is in greater jeopardy from the type of home and its surroundings, in which millions are born and live, than from any other cause.

In the new era after the war are we going to take our place among those who are giving their knowledge for the benefit of all or are we going to sit by the fire warming ourselves while others try to do this work as best they may? From a purely selfish point of view I might point out that the architect (hitherto unknown) has only to adopt the comparatively new title "town planner" immediately to enjoy the reputation of having a common interest with other men, no matter how slight his qualifications—a reputation which architects generally do not enjoy.

In making these remarks I have qualified them by admitting exceptions to the general situation. Among these exceptions there is none so outstanding as that in which we here may properly feel an honest pride—the pride one feels in the achievement of friends and associates.

I refer to the record of our own Journal, particularly during the last year, to the farsighted and clear vision of its editor, and to the courage, and I shall add, judgment and discernment, which led him to send Mr. Ackerman to Europe as early as last summer to collect at its source the dearly bought experience of England after three years of war. While other architectural publications were still publishing the work of individuals or discussing the architect's interests, the Journal took that broader view which it has held from its inception, and, since the war, has not faltered, despite many discouragements, in its effort to render to the nation that service which the architectural profession was best qualified to give and which made Mr. Ackerman's report the one authoritative document on a subject now imperatively demanding national action.

I am speaking to architects and am therefore only offering these considerations as "preliminary sketches." It is for you to develop them in your own way to meet the needs of that new era in which ideals will mean more and material possessions will mean less.

Let the little children born in airless and sunless rooms, growing up in congested surroundings where every fine instinct must wither and die, be a challenge to the architects of communities where such things exist! Let us look for our reward in the hearts of the mothers of healthy children and in the appreciation of those who have been allowed to grow to manhood, and womanhood, in surroundings which permitted them to retain their self-respect and to preserve that dignity which belongs to them by right and not by patronage! From these we may expect a new point of view and in them we may one day find that "educated public" which we have so long talked about.

Let not the measure of our success in the future be based solely upon the great works we have created for the 10 per cent, but primarily upon the extent to which the best of our abilities have been applied to the humbler but more vital problems of the other 90 per cent.

The Real Meaning of the Housing Problem*

By FREDERICK L. ACKERMAN

WE were not prepared for war; we acknowledge it. Thanks to three years of European experience to guide us, we conceived preparation for war as the mobilization of all of our resources. Being a great industrial nation full of pride and with a little contempt for what Europe had accomplished in the industrial field, we made light of our task. Seemingly all that we had to do was to appropriate money, call to Washington our captains of industry, negotiate contracts, and presto! all would be accomplished. So we assumed.

But why have we been so slow? Why does the production of ships lag when it is by all odds the most important factor in this war? Why? The answer is simple: In our pride we had assumed that our old pre-war business methods were efficient, that we were at least organized for industry. Now we ask ourselves squarely: Were our old pre-war methods really efficient? Were we really organized for industry? Were we organized for peace? We were not.

What is the evidence? Look at our output of ships and munitions. Consider our labor turnover. Consider the army of restless workers shifting up and down our seaboard. Observe labor flowing through our industrial plants as water through a sieve. Consider the attitude of capital and labor toward each other. Are they together fighting this war? Are they fighting shoulder to shoulder? They are not.

But what is the cause? Why the low output? Why the heartbreaking delays? Why the unprecedented labor turnover? Why the suspicious attitude of capital and labor? The outstanding reason, the answer to this composite question, is found in our stupid pre-war industrial policy. The restlessness of labor is not a product of war; the labor turnover was with us in the pre-war days. Together with the periodic conditions of non-employment, it was the inevitable resultant of our archaic industrial system.

In New York City alone prior to the war it was estimated that the annual labor turnover amounted to 8,000,000 per year, which means that 8,000,000 people were hired and fired and each lost approximately six weeks per year. It was estimated that the annual labor turnover in the United States amounted to 125,000,000 during the pre-war days. What it is now no one knows. Multiply that by six and that product by the average wage per week and you get some conception of the staggering losses resulting from the restlessness of labor.

To overcome this condition it is proposed that a system of Federal labor exchanges be instituted. The initial step has been taken; an insignificant number of exchanges are in operation. It is hoped that this service may be expanded. This work is of value, for, if made to function

*Read at the Annual Convention in Philadelphia, May 25, 1918.

over the entire field, a portion of the loss will be eliminated. This work may even be made significant, for the process of examining an applicant, and the securing of work locally for *qualified* applicants, will make vivid to the laborer that ability is a qualification which will secure employment. This is a hopeful sign; *it shows that we are beginning to recognize the problem as one of Federal scope.* It will not, however, solve the problem.

Our entire social structure rests upon an insecure foundation. We have developed an industrial system which, in the light of reason, has very little justification. And the root of the trouble is that we have become obsessed with the idea that the mere act of producing things was in itself a complete justification of effort. America suggests a mass of raw materials, a medley of industrial processes, a chaos of "Things." And all the "Things" are conceived as temporary—temporary buildings, temporary cities—something to depreciate, "write off," and replace—an utter waste of effort.

We have assumed that we possessed marvelous powers of organization; that we were tremendously efficient.

For what were we organized? In what sense were we efficient?

We were organized to accumulate profit out of things produced as cheaply as possible, but we were not organized nor are we now organized to produce the greatest benefit to those who labor at the production of things. The direct evidence of work, the vivid end of effort, has been the transformation of materials into things having little or no relation to the acts of the producer.

Our efficiency has been conceived *a la mode de* Taylor; "Things" again, the greatest number of "Things" in the shortest space of time, has been the only vivid goal of efficiency. Of a "liberal" efficiency, in which interest in a process of production served as the stimulating factor, our captains of industry know nothing. The nearer the artisan approaches the motions of a machine in his operations, the more he and his industry were deemed to be efficient.

The root of the trouble, the fault in our methods of industrial organization (which fault has been brought out so tragically in our effort at production in war industries), lies in the fact that we have failed to recognize that industry is at bottom the organization of human beings, and that human beings are not machines, that there is inherent in the souls of men a creative instinct, and that, if you suppress that instinct in making a man into a machine, it is sure to assert itself in some other form which is likely to have a negative social value.

Much of the unrest which is in the world today is not primarily the result of political institutions; it rather results from the fact that the great industrial organization of society which has developed during the last century has had as its point of departure and its end, the making of men into mere tools, into automatons; it has suppressed the creative imagination in the mass of men, and this suppression has given rise to the unrest of labor.

But what has this to do with "housing"? It is not so remote as it may appear. With society, with our entire mechanism of government and finance, organized upon the basis of an industrialism which aims solely at the production of things at a profit, with the standards whereby the measure of adequacy of environment is determined by "economic" standards—themselves a denial of a rational standard of living—with actual disease of the body as the only legal standard whereby we measure tolerable living conditions within our cities; with entire communities measured in the hundreds of thousands, organized and justified solely upon the profit of the land speculator and the profit arising out of the single industry there located; with such conditions, is there any wonder that there is restlessness in industry?

Can you expect men living in temporary houses in a temporary city, with no more vivid purpose in view than a living wage, to remain content? You can not.

The first problem of industry is so to organize itself that labor, that work which the mass of men do, shall in itself serve the purpose of a focus of creative endeavor.

Labor was, before the war, and labor is, treated as a commodity, like pig-iron, to be bought and sold, transported, mobilized, and then cast upon the dumpheap. Would it not have been more rational, would it not have been more businesslike, would it not have contributed more toward efficiency to have first organized the human factors in production, instead of first buying materials, negotiating contracts, without the slightest regard for the human beings who were to produce the sinews of war? In war the human elements which contribute to industry are as important as the human elements which comprise the military machine. This is the simple and elemental truth which we utterly ignore.

The industrial communities which I visited in England were but an expression of the national attitude toward the organization of industry. This attitude was not the product of war; war simply gave emphasis to an already acknowledged truth that the first and foremost factor in production is the conservation of human resources. Great Britain organized for war, not by writing paper contracts, but by making labor a part of her national industrial organization. *A disorganized mob of industrial workers can no more wage war against industrial Germany than could a disorganized mob of untrained men wage war against Germany's military machine.*

We witness our industrial effort breaking under the strain of war, but we fail to summon our courage to meet the situation. But we must meet the situation; we must remove the cause of our delay; and the cause relates to the future quite as much as to the conditions of the present and the past. But why should we now prepare for a future peace while we are still at war? The answer is that in Great Britain it is the vivid hope of a better peace, of better industrial conditions, of better education, of a better social and physical environment which has put British labor solidly behind the war.

In our program of industrial organization we have stubbornly refused to allow labor to see a single ray of hope. To the mass of men who labor we have said: "As you were;" and, "When peace comes, you shall return to the pre-war conditions of employment, back to the tenement or the slum, back to the home tied by a mortgage to the industrial corporation, back to the home built by the jerry builder, back to the same old, depressing, sordid environment." Because of these conditions, labor was restless prior to the war; because we have done nothing to remove these conditions, labor is more restless now.

But what of the future? What of the new standards of life which in Europe are emerging out of the conflict? Can we ignore these? Can we thwart the new purpose which fills the minds and souls of those who labor? If we do, the peace which we shall achieve will turn to chaos. Yet to stand still is but to oppose; it is to thwart the hope of better peace. Is this the way to wage the industrial phases of war? It is not.

There is one tremendously important element missing in our program of preparation and that element is the hope of labor for a better condition of peace. Make such a hope vivid to the men who work and American labor will become stable. Ignore it and the restlessness will increase. Within our field of interest a vivid hope would be expressed in decent homes, in slumless cities—in a word, in an adequate environment. It is our problem, it is our obligation to make such a hope a reality.

But to make this hope a reality we must extend our field of vision; the problem of housing and town-planning must be conceived in broader terms; the mere ability to design pleasing cottages will not serve the purpose. Our narrowly conceived personal efforts, our much-heralded private enterprise will not serve, for we shall be confronted with a national problem involving international values.

But what does this mean in definite terms of action? It means that we must establish totally new standards in the framing of legislation and in the administration of justice. Under present conditions, by legislative enactment and through judicial decision, we permit an individual to rob his neighbor of light and air and to maintain his property in such a state as to jeopardize the health and morals of the community.

It means that we must so organize our government that such conditions will no longer be possible.

It means that we must establish a complete new system of mobilizing credit. What is the sense in our limiting the use of state funds to such fields of collective building as the erection of poorhouses, houses of correction, jails, and hospitals for the insane, while we permit loaning corporations to use our collective capital in such a way as to develop the social, moral and physical diseases which fill these public institutions to overflowing? It means that we must so organize society, that we must so organize the state, that wealth, that capital, that credit shall be also used for the purpose of preventing these diseases.

It further means, if we hope to solve this problem, that we must establish a new set of values in education. Here it is "right-about-face" as regards aim and purpose. To go on teaching the narrow ideals of individualism is futile. The purpose for which men live must be considered in terms of collective interests and not in terms of individual and selfish profit. To be able to serve, to be able to contribute, must become the central theme of education. This applies quite as well to the education of the architect. Our schools absolutely ignore this fundamental problem.

Speaking more technically, it appears as a problem because we are at last beginning to understand the appreciation of land values which accrue as the result of an increase of population, and to realize that when this increment of value is grabbed by individuals, by speculators, gradually but inevitably every one of us is forced into smaller and smaller quarters and a more cramped and artificial environment. While part of us can meet this situation in one way or another, that cannot be said of the low-paid wage-earner. He has absolutely no choice. As the value of property goes up, little by little the size of his home diminishes until his windows open out upon tiny shafts and cramped back yards. He becomes a tenement dweller, but still the process goes on; in comes business, the god of the modern world, and he has to move. It is the increment of land values that squeezes and squeezes and finally drives the worker from his home.

The solution of the problem, therefore, consists in conserving the appreciation of land values which result from the community use of property, for the benefit of *all* who constitute our communities. Unless we conserve this increment for this purpose the problem cannot be solved.

Housing appears as a problem, because we have recently discovered (Europe discovered this fact a generation ago) that restrictive legislation—of which the New York Tenement House Law is an example—when operated alone, does not provide the worker with a better home. Such laws insure that the home shall be more sanitary, that it shall have a certain minimum amount of light; in a word, they express a minimum degree of toleration. They tell the property-owner what he cannot do. The law is a repetition of "don't, don't, don't"!

The effect of such legislation is to increase the cost of building, which means that for a given rent the worker obtains a smaller home. Such laws are necessary to protect the community against the greed of individuals. Therefore, in this respect, solving the problem means the creation of a counteracting force so that, when we increase the cost of the worker's house by legislation, we shall not by that legislation decrease its size nor force him into a more densely populated area.

The entire western world has recognized that the provision of homes for workers is a "problem." Various measures looking toward solving this problem have been initiated by the various nations. These measures may be divided into two classes: Those which aim at providing better homes through restrictive legislation, and those which promote the erection of better homes by mobilizing state funds for this purpose.

The United States stands almost alone in having made use of restrictive legislation only. Stubbornly, tenaciously, have we held to the idea that the problem could be solved in this way. Jealously have we guarded "individual rights" and private initiative; fearful have we been of Government aid and paternalism. Seemingly we prefer slums; seemingly we prefer to have labor tied by a mortgage to the industrial corporations; seemingly we prefer philanthropy to rational collective action. Apparently we do not care what happens to the lowest-paid wage-earner. We give him three situations from which to choose—intolerable conditions, employment by a corporation which provides homes for its workers, and the acceptance of philanthropy. Collectively we have made no provision for the lowest paid except that he be squeezed between the relentless organized forces of credit and those arising out of restrictive housing legislation.

But what have the nations of the western world accomplished? They have been trying to solve this problem. They have restrictive housing legislation, but they also

provide the counter force. In nearly all cases the nations of the western world loan large sums to limited-dividend corporations, to municipalities and to workers, for the purpose of erecting workmen's homes. In most cases, European cities are empowered to clear slum areas and erect better homes in the place of those removed. In many cases we find that cities have bought up large tracts of land for this purpose in order to preserve the increment of land value which results from such a use. Some countries promote the building of workmen's homes by making them tax-exempt.

With this evidence of the world-wide recognition of the problem, with this evidence of the consensus of opinion as to how it can be solved, still we hesitate. "Don't, don't, don't," is the central theme of our law. Is it any wonder that we develop a fear of government? Is it any wonder that our government remains impotent to deal with affairs which relate to our collective interests? We have never given our government a fair trial.

After the war there will be a tremendous and unprecedented demand for labor. Europe will not then seem so far away. If there be greater hope in Europe, if governments there function more effectively for those who consume, if there be expressed in the governments of Europe a more liberal democracy, if life should there appear more worth while to those who labor, the flow of workers to our shores will cease and we shall witness the human currents of migration change their direction.

The mass of men in the future will not think so much of the form as they will of the function of government, and you may rest assured that after the war the function of all European governments will be extended to a wider field of collective provision; and the collective provision of homes, of a more adequate environment, of a more liberal education for those who work, will become a most important function of the State.

Do we think for a moment that we can compete, as now organized, with such conditions after the war? If we do, we shall be sadly mistaken. Housing and town-planning, so long as industrial production be stressed and emphasized as it is now, must be no less than a function of the State. If we are not sufficiently alive to the social, political, and economic significance of housing and town-planning to make them functions of the State by choice, then it behooves us speedily to make them functions of the State in self-defense; and the reason for this is that labor will have extended its field of knowledge, acquired greater powers, and will then be able to choose its own environment. This is the reason why we should now phrase our industrial program in terms of reconstructive value; why we should lay the foundation for a liberal program of constructive housing and town-planning legislation.

But what is a "liberal" program of housing and town-planning? What does it involve in terms of philosophy, of science, of education, of art, of the technique of government?

A "liberal" program is, above all and supremely, a national philosophy, and such we do not have today. It is a science involving all interests of life. We do not so treat it. It is an art, forward-looking, involving the future; we treat it in terms of the past. It involves a complete reorganization of education, for education must look forward toward the development of a rational concept of life, and our present education does not. In the technique of government it involves the extension of the function of government into new fields, for it is not sufficient for government to function alone in the field of restrictive action; government must be forward-looking, for it *is* more powerful than individuals, and a government which confines itself to thwarting the purposes of men is not a progressive nor a democratic government.

In the field of education within our particular interest a liberal program involves the complete reorganization of our methods and our ideals. To attempt to lead a nation in the tremendously important fields of housing and town-planning, while omitting completely, as we do, these subjects in our schools, is utterly irrational; it is stupid; it is the act of the hypocrite. Our knowledge of the subject is superficial and it will remain superficial just so long as we fail to educate ourselves. That, in particular, is what it involves in connection with our architectural schools. In the field of government it involves a series of activities relating to towns, cities, states and the nation.

Let us hope that we are done with the futile, impotent "commission" method of attacking this problem. There must be vocational representation in the seat of executive and legislative authority. The organization of our entire physical environment better to serve the needs of all men must be a function of the State. There must be integrated purpose expressed in our acts of government.

We must mobilize national credit, state credit and municipal credit to remove the slum areas and centers of congestion. We must treat the problem of congestion upon a national scale; otherwise congestion will increase. We must, in one direct, simple act, sweep aside our stupid concept of the value of having all things initiated locally and treat the planning of all areas within the United States as a single problem. Let us quit thinking of town-planning in terms of quarter sections and prepare to plan counties, states and the nation. Is there any logical reason why we should not? We may not know how, but we can learn.

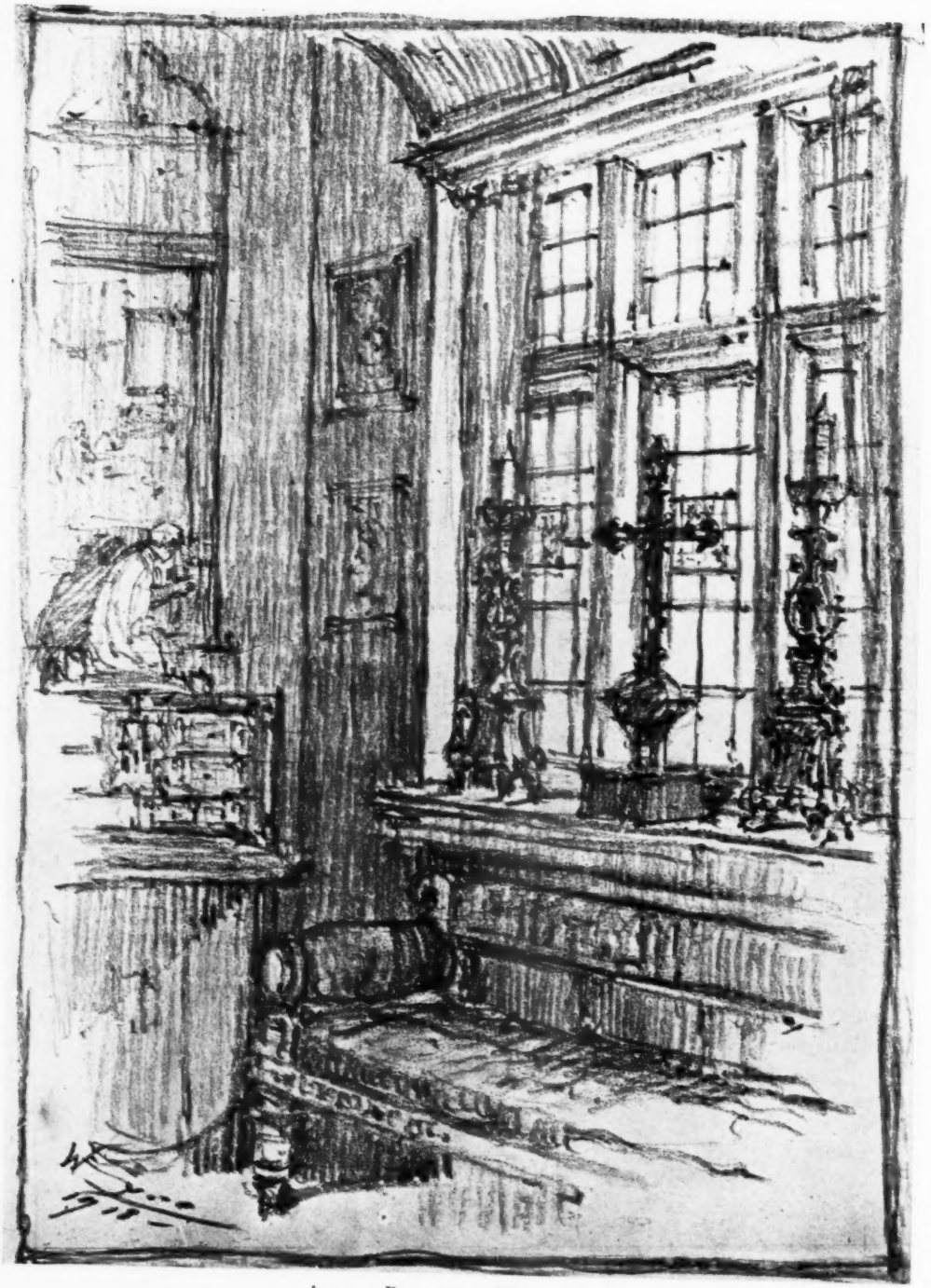
In any case, let us lift our ideal above the level of that of our present false and misleading "economic" values and standards and attack the problem of housing and town-planning in such a way that the ideal which we set up shall coincide with the ideals of a rational life.

By such a program we would make vivid the hope that a life of labor would not of a necessity doom a man to life in a slum, nor to life in a tenement, nor to sordid surroundings, nor would it require that he, in order to avoid these conditions, tie himself to his employer by a mortgage upon his home, nor as a last resort, that he accept philanthropy.

If we wish the worker to respond to our call for greater industrial effort, we must make vivid in terms of present acts and future policies that victory will bring to him no less than it will bring to his industrial allies in Europe. To suggest that with the advent of peace labor shall return to pre-war conditions is but the act of eliminating from our program of industrial preparation for war the most stimulating factor of all. Deliberately to propose that the industrial phases of this war be waged vigorously without hope is quite as irrational as to propose that in this war peace may be attained without victory.

*After a Drawing by Wilson Eyre

*This and the three following illustrations are from drawings exhibited at the Annual Convention of the Institute in Philadelphia



After a Drawing by Wilson Eyre

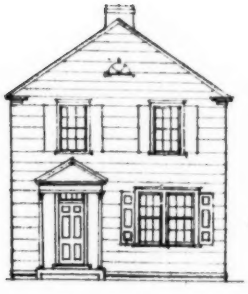
After a Drawing by Wilson Eyre

After a Drawing by Wilson Eyre

North and South Commons, Yorkship Village.—A Housing Development near Camden, N. J., for the New York Shipbuilding Corporation
Electus D. Litchfield, Architect. See page 249

ALBEMARLE SQUARE, YORKSHIP VILLAGE.—A Housing Development near Camden, N. J., for the New York Shipbuilding Corporation
Electus D. Litchfield, Architect. See page 249

BUILDING NO 210



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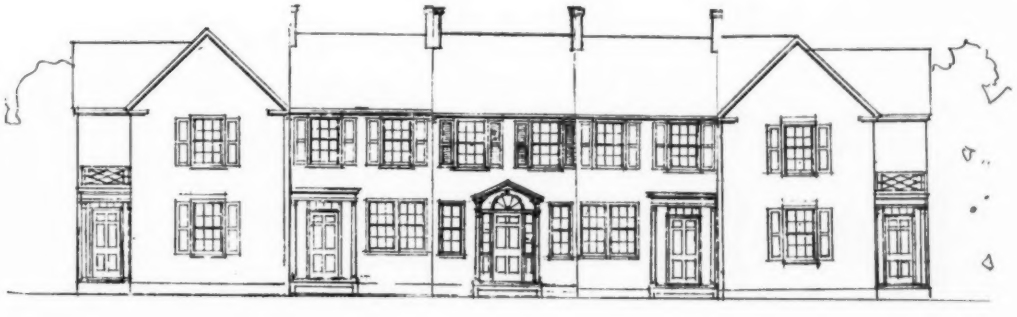
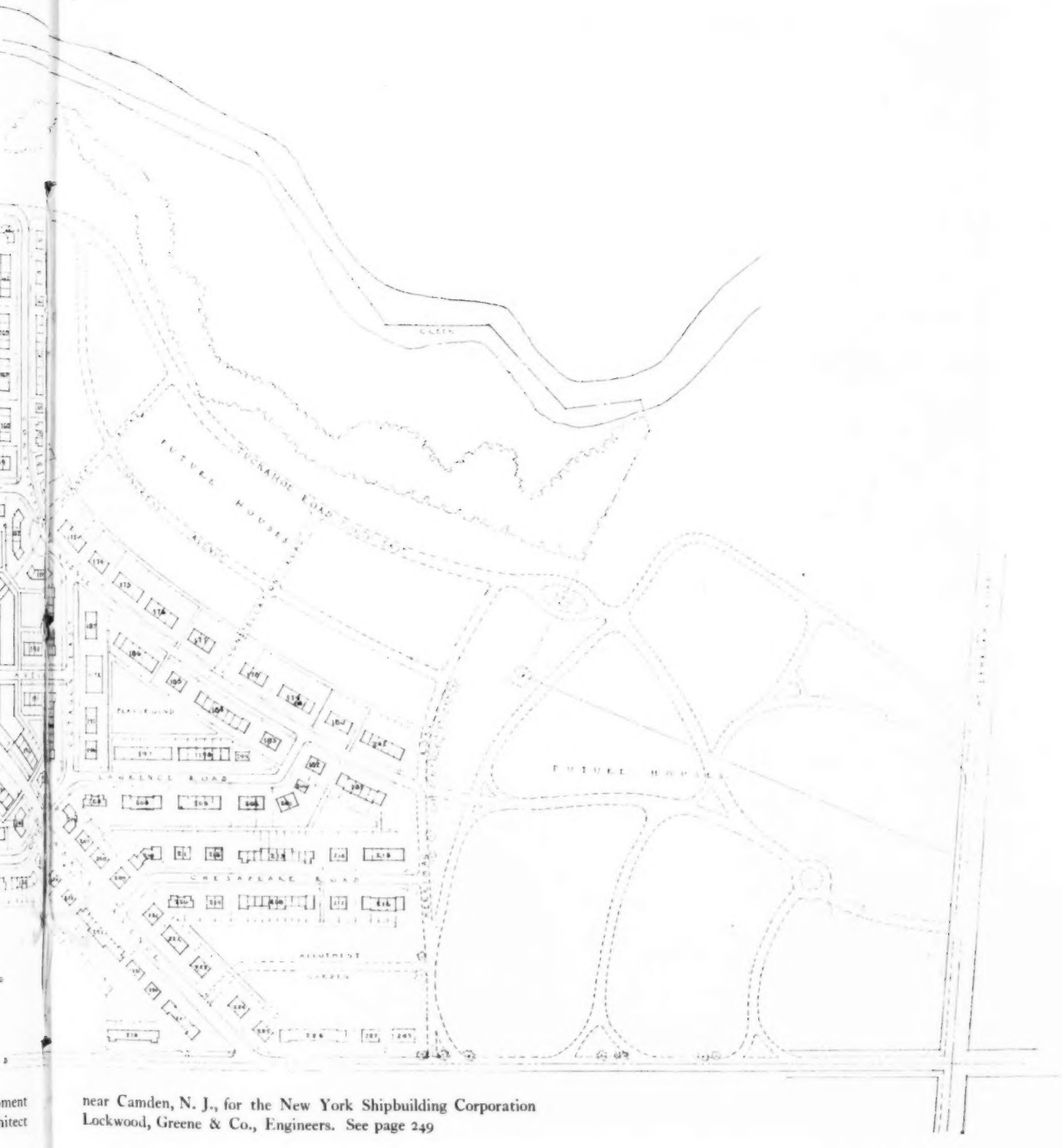
BUILDING NO. 12-121-149-238.



BUILDING NOS - 60-64.

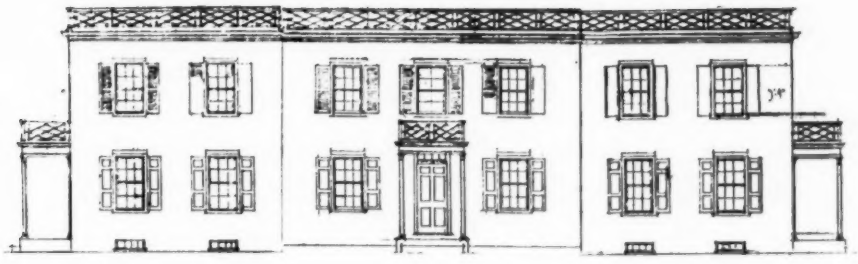
Elevation Sketches of House Groups, Yorkship Village
A Housing Development near Camden, N. J., for the New York Shipbuilding Corporation
Electus D. Litchfield, Architect. See page 249

General Plan, Yorkship Village.—A Housing Development
Electus D. Litchfield, Architect



near Camden, N. J., for the New York Shipbuilding Corporation
Lockwood, Greene & Co., Engineers. See page 249

GROUP OF HOUSES, YORKSHIP VILLAGE.—A Housing Development near Camden, N. J., for the New York Shipbuilding Corporation
Electus D. Litchfield, Architect. See page 249



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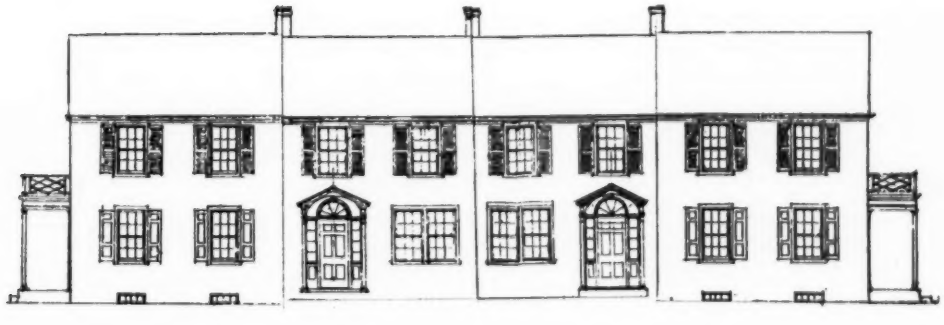

BUILDING · NOS · 179-168-167-21

ELEVATION SKETCHES OF HOUSE GROUPS, YORKSHIP VILLAGE
A Housing Development near Camden, N. J., for the New York Shipbuilding Corporation
Electus D. Litchfield, Architect. See page 249

On the Site of Yorkship Village

Paper Architecture

By A. KINGSLEY PORTER

IF, to a certain extent, it be true that clothes make the man, it is, with a similar qualification, true that technique makes art. In polite society a picture without technique appears to as great disadvantage as a person without clothes. An excessive recognition of this fact has led during the last half-century to the use of the catchword "art for art's sake," which, as currently employed, means technique for technique's sake. In painting, the value of the technical means has thus been grossly over-exaggerated. In architecture, on the other hand, it may well be doubted whether the value, or even the existence of technique, has been sufficiently recognized.

The modern technique of architecture differs fundamentally from that in vogue during the Middle Ages and in antiquity. In the Italian Renaissance there began a gradual evolution, or, perhaps, it would be better to say revolution, which has entirely altered the mechanical aspect of the art. If we seek for the fundamental cause of this radical change in means of expression, we shall find it in a very obvious mechanical detail. It is the discovery of paper which has entirely changed the practice of architecture.

It may seem surprising that a mere mechanical and utilitarian invention, such as that of paper, should deeply transform, not only the surface finish but even the inner spirit of a major art. Yet the event is not without analogy. Historians have long called attention to the influence which the introduction of printing produced upon thought, though, of course, it is obvious that printing could not have had its effect had it not been for paper. Further improvements in the mechanical arts have produced an equally great transformation in the art of literature. Stenography and typewriting in recent years have vastly increased the quantity of the output, and have also with equal certainty altered the quality, though that for the better rather than for the worse, I should hardly venture to assert. Indeed, I am far from being satisfied that the influence of printing upon literature has been as beneficent as usually supposed. It has not been demonstrated that either Dante or Homer would have written more divinely had the printing-presses stood yawning to issue their works in editions of the hundred thousand. An inspection of an American news-stand has seldom failed to leave me with the impression that the average of literary production in the Middle Ages, in that hour which we are accustomed to consider most dark, possessed greater merit, both from a literary and an intellectual standpoint, than the average of literary output today.

For the medieval architect, the only drawing material available was, generally speaking, parchment, which was comparatively expensive and used sparingly. The builders did indulge in its use. Quite a number—all told perhaps twenty or thirty—architectural drawings of the Middle Ages have come down to us. Villard de Honnecourt, a thirteenth century master-builder, even possessed an entire sketch-book filled with free-hand drawings. Recourse to parchment, however, was had only very rarely, and, in general, the builders appeared to have worked directly in the stone. With the introduction of paper, all this changed. Architects became able to sketch as much as they desired. With very little expense and very little effort, ideas could be tried out on paper, and their effect judged. Moreover, paper lay flat and could readily be stretched on boards. It lent itself to mechanical drawing, whereas sketches on parchment must, perforce, be largely free-hand. The invention of paper was soon supplemented by the discovery of improved drawing instruments and a new convention of architectural draftsmanship.

It is evident that the new methods offered immense advantages to the architect. By means of drawings he was able to study and restudy, not only the building as a whole, but any of its details. He was enabled to judge with far greater accuracy what the ultimate effect would be, and he was able to foresee and solve many difficult problems of planning and intersection which otherwise might lead him into serious embarrassment. Indeed, so evident are the advantages of the modern method of construction, that it is very difficult for us to conceive

how an elaborate building could have been erected with only the simple appliances at the disposal of the mediæval builders.

As in the case of literature, however, the obvious mechanical advance does not seem to have produced the artistic results which might reasonably have been expected from it. It is easy to point out several particulars in which architecture, created with the modern technique, is inferior to that produced by the more laborious ancient process.

For one thing, there has resulted rigid mechanical exactness in the laying out of buildings. Nothing is easier than to draw straight lines with the help of a T-square and a ruling pen, and straight lines were adopted in drawings in place of the broken lines and curves which had been used in ancient buildings. From the drawings the mechanical exactitude, the hard straight lines, were transferred to the buildings themselves, and thus were lost the vibrations that lent so much charm to medieval and ancient structures.

In our modern cities the fronts of the buildings are elaborately finished and often coated with cut stone or other forms of decoration. The sides and back, however, are generally left unfinished, and are apt to be exceedingly ugly in their crude lack of ornament. It is doubtless the theory that the back and sides will not be visible; but, as a matter of fact, they constantly are visible. This so too familiar defect of modern architecture I believe to be due to the use of paper. Modern architectural drawings are made in elevation, that is to say, from an imaginary and artificial point of view from which only one face of the building is seen. In actuality, of course, a building is never seen under precisely these conditions. The modern system of architectural drawings is the result of a long evolution. Du Cerceau, at the end of the sixteenth century in France, perfected a system of architectural perspective in which buildings were seen at bird's-eye view from above, so that the plan as well as the elevation was indicated. This method, delightful from a pictorial standpoint, was yet complicated and difficult, so that it was gradually supplanted by the modern conventional drawings which are entirely mechanical and, therefore, very quick. Nevertheless, the fact that buildings are studied in elevation and not in perspective leads to many blemishes of which the unfinished back and sides are the most conspicuous, though perhaps not the most insidious.

The use of paper has also led to deterioration in the quality of detail. In mediæval times the man who cut a capital was himself an artist. He designed what he executed. The discovery of paper has made it possible for the architect, or his office force, to design on paper all the details. The drawings are given to the workmen who copy them mechanically. The result has been a great decline in craftsmanship. This has been accentuated by the unhappy fact that the ease of the new method has greatly stimulated production. Modern architecture, like everything else modern, has too often been wholesale. It was so easy to draw capitals, that the architects themselves ceased to bother with them, and even the office force became annoyed at the task. The thoughtless drawings came to be executed more and more thoughtlessly by laborers who felt no joy in what they did. The trades-unions gave the *coup de grace* to the art of stone-carving. Medieval guilds differed from modern trades-unions in that the guild was organized primarily to safeguard the art, to insure the thorough training of all who professed it, and to maintain the highest standard of quality in the production; while the modern trades-union seeks only to safeguard the material welfare of its members. The trades-union has no interest in maintaining quality. For its selfish ends it even seeks to lower the standard of production.

Trades-unions have been able to exert this baneful influence upon architecture only because of the evolution which has taken place in the art. It is a mistake to conceive of the trades-union as occupying today the place held by the guild in mediæval times. The modern system tries to compensate for the inferiority of present-day laborers by producing a class of specially trained architects to direct them. The decadence of modern labor is evident if we stop to think of the dire results which almost inevitably follow the attempt to erect a modern building of any pretentions without an architect. Yet nine-tenths of the architectural masterpieces of the world have been erected without an architect in the modern meaning of the term. Throughout the Middle Ages such a functionary was unknown. The so-called architects of the Italian Renaissance were almost without excep-

tion trained as apprentices to painters or sculptors, and were much more analogous to the medieval master-builder than the modern architect. Of the three best-known English architects, Inigo Jones, Sir Christopher Wren, and Lord Burlington, not one was a trained architect. In America we possessed no architect before Charles Bulfinch, a name which marks the close of the great period in American architecture. The school-trained architect was really a creation of the French, and more precisely of Colbert. It is only during the nineteenth century that his right to existence came to be generally recognized. The rise of the architect is solely due to the use of paper and the technical processes thereby made possible.

One of the most serious, though the least tangible, evils of paper architecture, is the fact that the architect no longer senses the building growing beneath his hand. It is undoubtedly a great advantage for the creative artist to work directly in his material. There comes a feeling from the material itself, a subtle unity with the medium, which cannot be attained when the artist does not himself execute. Moreover, the very labor of the execution compels a closeness of study, forces a thoughtfulness which is lacking when the conception is translated from paper. This fact has been so thoroughly demonstrated in sculpture that most sculptors who possess artistic conscience (there are still a few who have not become commercialized) will not allow their works to be executed by another hand. Paper architecture is always executed by another hand. Thus it loses.

Another quality which paper architecture has lost is the element of color. Until the introduction of paper, color played an almost predominating rôle in architectural effects. When buildings began to be studied in drawings instead of in actuality, color, which does not appear in a drawing, came to be eliminated. Instead, there was developed the new art of rendering. This often supplies in the drawing the important element of polychromy so essential to artistic effect, but this color is not reproduced in the actual building.

In recent years the introduction of photography has had a profound influence upon architectural art. Even before engravings and other methods of reproduction had led to the use of foreign and distant models, the architect in search of inspiration found it more convenient to turn to books rather than to the actual monument. It therefore became as easy and natural to copy a Burmese pagoda or a California mission as a Colonial house. The natural consequence was that eclecticism, that use of models of all types and styles, which is, perhaps, the dominating, but by no means the most fortunate, characteristic of present-day architecture. Moreover, photographic effects have been very largely sought in design. I am amazed to see, in turning over the pages of current architectural magazines, how much more effective photographs of modern buildings are than the structures themselves. It is undoubtedly because the design was itself inspired by photographs. The architect has selected those effects which appear best, not in the actual building, but in reproduction, and these he has copied or enlarged upon.

Indeed, it is from reproductions in books that fashions in architecture are set and reputations are made. The rôle played in the history of English architecture by Campbell's *Vitruvius Brittanicus* is well known. Yet this work was composed with no higher motive than that of self-advertisement, in which the author so admirably succeeded. It may well be doubted whether the Adam Brothers would enjoy half the reputation they actually possess, had they not advertised themselves by a book useful to architects. There is hardly a modern architect who does not know and admire the finely pictorial works of Mr. Charles Platt, yet it has been my experience that many of those who are most influenced by them have seldom seen the beautiful originals, but are acquainted only with the reproduction in Mr. Platt's book.

All told, it appears that evolution in architecture has not been an unqualified advance. The obvious advantages gained have been counterbalanced by serious losses. A realization of this fact has produced in recent years a considerable dissatisfaction with the state of things as they are, and more than one attempt has been made to overthrow our existing system. It has been believed that at all costs ancient conditions must be revived.

A little thought, however, will, I think, be sufficient to show that this can never be done on a large scale. We cannot go back to the Middle Ages. The ancient guilds are dead. The

architect has come to stay, and there is no possibility, even were it desirable, that he should be replaced by a master-builder. Craftsmanship and the conditions of labor we may not too unreasonably (if we be of optimistic temperament) hope to improve; but the fundamental technique of the art cannot be rolled backward. We must produce paper architecture as we produce paper books. It would be as unthinkable to revert to medieval methods of building design as it would be unthinkable to issue a great poem in manuscript on parchment.

Moreover, after all, in the last analysis, the faults of modern architecture are not so essentially those of the technique. New methods should be devised to meet new conditions, and if the new conditions have produced difficulties that have not been solved, the fault lies not so much with the conditions themselves as with us who have failed to meet them. It is, I believe, distinctly the public, not the architects, who are to blame. Many modern architects are conscientious artists, but they are too often helpless in the hands of the public. America of the nineteenth century was not a land sympathetic to art. Artists were born among us, but we gave those of them that were true artists scant encouragement. We produced one great novelist, Henry James. He expatriated himself. We produced one great painter, Whistler. He also expatriated himself. We produced one great musician, MacDowell. He was driven insane, and among his chief persecutors was an institution which passes as a center of culture. James, Whistler, and MacDowell were still able to produce. Less strong men, however, were doubtless sucked into the mediocrity which surrounded them by the Great Boyg, that most uncompromising spirit of compromise. But if, in spite of the spirit of the time, some painters, musicians, and poets have produced great art in America, no architect can ever hope to do so. The chance of the architect depends upon immediate recognition. He cannot wait for vindication by time. If he is not given his chance, he can leave nothing for posterity to judge.

Also in a more subtle way the architect is the child of his age. He must build in the manner in which men about him build. No individual, however great a genius, could have produced the cathedral of Rheims in the fifteenth century at Florence. The modern architect must build in the modern manner. He must, moreover, contend with modern conditions, and these conditions have been very adverse to the perfection of his art.

No influence has been more pernicious than that of machinery. Nothing has played such havoc with the esthetic sense of the race, nor with craftsmanship. We are all familiar with what machinery did to furniture. We are also familiar with the gingerbread carved woodwork introduced by its gentle ministrations into the Victorian house. We do not, perhaps, often stop to consider the deadening effect upon the esthetic sense of the people produced not only by the habitual contemplation of such abortions of art but by long days passed in the presence of machinery and far removed from everything beautiful. The machine also supplemented the T-square in producing that rigid regularity which is the curse of modern buildings.

In addition to the machine, architecture has had to contend with other enemies no less dangerous but more insidious. A people, intensely interested in the latest inventions in plumbing, steam-heating, and electricity, but indifferent to the expression of the beautiful, has pushed the artist towards the fatal descent to Avernus. He who made the great refusal was rewarded with flesh-pots fatter and greasier perhaps than any ever before offered; he who was obdurate was crushed. The power of vicious folkways, the tyranny of the majority, has been victoriously asserted. Architecture has been engulfed by the commercialism of the age; and, in so far as it has become a business, it has ceased to be an art.

In such conditions, it would be a most dangerous, even were it a practical, move to revert to the mediæval system. The architect is at present the only safeguard for art against the degeneracy of craftsmanship and the ignorance and vulgarity of the public. Hope for the future lies, not in stopping the education of the architects, but in bringing about a change in the attitude of the public. The seeds of genius are sown among us, as thick, perhaps, as they ever have been; but, unless they fall on soil that has been worked and fertilized, they can never reach their full fruition.

The First War Emergency Government Towns for Shipyard Workers

I. "YORKSHIP VILLAGE" AT CAMDEN, N. J.

By RICHARD S. CHILDS

YORKSHIP Village is the name of the housing project of the Emergency Fleet Corporation for employees of the New York Shipbuilding Company at Camden, N. J. If it indicates the kind of Government housing that is to follow, we may all rejoice.

The site is an irregular tract of 225 acres of farm land on the outskirts of Camden, just within the city line near Gloucester and Westmount. It is shut off from Camden and Gloucester by a marshy brook. A highway with a new trolley leads to Gloucester, and a new road crosses the marshy land toward Camden. For all practical purposes the site is an island—a feature with economic possibilities that we will consider later.

The entire tract has space for 2,400 lots. The present contract develops 90 acres and calls for the erection of 907 houses, some stores, apartments, and a theatre. Sewers, lights, and gas are being brought in from Camden, and Camden will supply a school. Work is well under way, and the town will doubtless be a living reality before summer ends.

Electus D. Litchfield, of New York, is the architect and town planner, and he desires that generous credit for assistance be given to his junior associate, Pliny Rogers.

Having a flat, unobstructed site, almost unconnected with other areas, Mr. Litchfield was able to draw his town plan on practically blank paper. His starting-point was the new road from Camden, which he broadened to a parkway and terminated in a plaza and commercial center in the heart of the tract. At an angle he ran another parkway toward Gloucester, where is another shipyard; the rest was a matter of spinning a cobweb in such fashion as to avoid long weary lines in favor of short closed vistas. He has not let his fancy run as far and free as the English planners did at Well Hall, where straight lines were studiously and completely avoided, even the edges of the sidewalks being made irregular, but his straight lines are short, and the end of the street or a turn of the way will always be in sight. As no thoroughfare cuts through the tract any way, the residential roads are secure from heavy traffic and will be quiet and safe. There are generous playgrounds, a spacious school-site, and a space for gardening for workers who desire land for that purpose.

In the houses, Mr. Litchfield has drawn upon his successful experience with small houses at Jamaica, Long Island, and has devised a charming series of Colonial exteriors in brick and in stucco. The creation of a whole town in Colonial architecture will set a novel standard in town harmony!

It is hard to realize that these varied and attractive façades mask a type of small home, the endless monotony of whose exterior treatment makes Philadelphia so dreary to the eye! Long rows are avoided, the longest groups having eleven houses. There are 243 groups altogether, composed of 27 types of houses in 70 different combinations. Broken roof-lines are the rule. The ship-worker will not have to look at the number to identify his home in Yorkship Village!

The improvements on a typical lot will cost $450, perhaps more; a typical house costs $2,700. The bulk of the money is lent by the Government (Emergency Fleet Corporation) to the New York Shipbuilding Company, with provision for the transfer of the whole housing enterprise to a subsidiary corporation, the Fairview Realty Company, the stock in which is, for the present at least, in the hands of the shipbuilding company. Mr. Wallace Benedict, of the New York Shipbuilding Company, is the active manager of the project.

The contract with the Government makes the loan a first lien upon the property, charges 5 per cent interest, and demands repayment of the principal at the rate of 3 per cent a year. Houses may be sold and the parcel excepted from the blanket mortgage by paying off the due proportion thereof, and such a payment (rather

illogically) may be counted as part of the general 3 per cent amortization charge. There is no arrangement for continuing the Government loan as a separate little mortgage on such a parcel; private capital must be found to finance a worker who wants to purchase on a monthly instalment plan. The private capital stock is forever limited to dividends of 5 per cent cumulative, even after the Government gets its money back. In the period from two to five years after the close of the war, the realty company, if it has been unable to meet the Government's demands and to pay its 5 per cent dividends, may secure an appraisal of the assets of the company by a board of arbitration, and the shrinkage up to 30 per cent will be written off the Government loan and presumably refunded likewise to any who may have purchased houses meanwhile. The foreclosure provisions are slow and lenient. The present generation of Fleet Corporation officials interprets the contract to mean: "Get along if you can. If you make money, use an amount up to 3 per cent each year to repay the Government. Any excess beyond that goes back into welfare work or further improvement of the property. There will be no foreclosure if your management is competent and sincere. After the war, if building costs go down, leaving you face to face with a competition that you can't meet, or if a reaction in local industry leaves you with a deserted village on your hands, we will absorb the shrinkage as a cost of war and write it off the Government mortgage, making the property once more a sound business proposition, with all your arrears of dividends cleared up. Go ahead now, pick your own architect, show us the land and the plans for our o. k. and don't be afraid to make the place attractive to labor, so as to reduce the labor turnover which is now crippling the shipyards."

For the present, this contract is, I understand, typical of those emanating from both the Emergency Fleet Corporation and the housing organization under Mr. Eidlitz.

Locally capitalized corporations are insisted upon in all these projects because of the Government's reluctance to be a landlord, but, in cases like this, where the employer is the only available local capitalist, it creates the unfortunate embarrassment of making the employer the landlord, subject to the additional friction with his employees that the relation of landlord and tenant so often involves.

On paper, at least, Yorkship Village faces a remarkable economic opportunity, an opportunity that is enlarged by its topographical isolation. The unearned increment cannot very seriously spill over its borders to the enrichment of lucky neighbors or the enhancement of the business frontages of any adjacent community. Nobody can set up in business very near to Yorkship Village, for the wooded creek, with only one crossing, shuts off parasite developments and keeps within the tract the commercial land values that are due to be created by the spending-money of a thousand prosperous workers. Mrs. Shipyard Worker will therefore spend her husband's pay mostly in Yorkship Village. The Camden business streets are too far away—a stiff walk or a roundabout trolley ride via Gloucester. Gloucester and Westmount are too small to outbid the markets of Yorkship Village itself. So the grocer and meatman and drygoods merchant and druggist and movie manager who seek the trade of the Yorkship Village people must come and jostle for elbow-room around the central plaza and pay good ground-rents for the privilege. The land values thus created constitute the major part of the unearned increment that is to be expected, and while the residential lots may remain worth only about what they have cost, the business frontages will be worth five and ten times their original cost and may be valued in scores of dollars per front foot.

How much the increment will amount to is impossible to predict. But the cost of the land, with the land improvements, reckoning on 5,000 population, will be only about $90 per capita, whereas the normal land value is at least double that figure for a high-grade industrial community like this, without allowing anything for the extra value conferred by the charm of Mr. Litchfield's architecture and town plan. The land value in Gary is $743 per capita; in Lackawanna it is $644; in New York, over $1,000; in numberless towns of the size of Yorkship Village it runs from $150 to $450 per capita. If we take $200 per capita as the Yorkship Village value, we have an increment of $550,000, which at 5 per cent gives an annual value of $27,500. In other words, the owners could safely charge the people $5.50 a year per

head more land rent than the costs compel (assuming that house rents cover house costs).

Moreover, there are empty lots left within the 90 acres against which no street improvements have been calculated, the whole cost being calculated above against the 907 lots that will be occupied at once by houses. To these extra lots nothing further will be chargeable on the books except the original cost of the land. As to the section reserved for future development, its water and sewers need not cost nearly as much per lot as in the first contract. There is room* for 2,400 houses altogether, and if they are built and occupied, as it seems likely they soon will be, the cost of improved land per capita goes down and the market value per capita goes up, increasing the indicated increment to over $1,000,000! That may seem fanciful to the builders of Yorkship Village, and we need not bet on it, but when a prosperous population of 12,000 suddenly goes to dwell on a rural farm, strange things are due to happen. The unearned increment at Lackawanna, which the Lackawanna Steel Company created (14,000 population), was $6,788,000. Part of it, of course, is a speculative value, but it serves to make an increment of at least $1,000,000 at Yorkship Village, with its ultimate 12,000 population, seem reasonable enough!

The annual value of that increment, if converted into revenue for the benefit of the community, would apparently add over 50 per cent to the normal per capita income which Camden obtains from the general property tax.

As the dividends of the Fairview Realty Company are limited to 5 per cent annually, the increment is safe from private exploitation so long as the Realty Company refrains from selling off any houses and lots to parties not similarly restrained. The Realty Company will probably charge no more rent than the costs compel and thus will deliver the increment to the tenants in the form of rents that are lower than unrestrained private landlords would exact. A better way, if practicable, would be to charge normal rents, i. e., what other landlords in the region charge for equal accommodations. Thus, private construction, which is still badly needed, will not be discouraged, and the wage-scale of the employer will not have an unequal value, depending on whether a worker is lucky enough to get into Yorkship Village. Such a rental basis might drive up the wage-scale—it certainly would bring in a revenue in excess of all normal expenses. The community with its 50 per cent extra revenue could do for itself a multitude of things along the lines of health, schools, and recreation that would make Yorkship Village as surely a garden city in a social sense as it is to be in the sense of physical attractiveness!

At all events, speculators must be excluded. While the war lasts they must not be permitted to get hold of these houses and take advantage of the continuing housing shortage to boost the rents to the maximum that the well-paid shipyard workers can stand. That would nullify high wages by high rents and restore the restlessness of labor and the high labor turnover, thereby delaying the ship program. Any Tory can see that!

But why not continue to prevent exploitation of the unearned increment after the war, too? Amortize the Government loans out of rentals, at least to the point where a private mortgage can be obtained to refund it! In other words, take advantage of the unique non-profit-seeking origin of this town to sell the town on the instalment plan to the tenants *as a group*, to be held in perpetual trust for their benefit by a limited-dividend corporation, like Letchworth, or the Co-Partnership Tenancy Societies of England.

*With further additional street development.

AN AMERICAN
FOR THE BEST SOLUTION

Conducted by the Journal of the American Institute

WHILE the indispensable contribution which architecture has to make to the world-wide problem of the house is of the highest importance, the experiences of the last half-century, in all the leading nations of the world, have demonstrated beyond further doubt that society must now and in some manner grapple with and correct those fundamental economic laws which have produced their cycles of congestion and slums in all our communities. Until this is done, architects cannot take any great part in the solution of the house problem, the present acuteness of which has been so greatly emphasized and demonstrated by war.

While the numerous "small-house" competitions of the past have done much toward stimulating an interest in the question and have exercised a certain influence upon a small fragment of our small-house development in this country, they have contributed nothing at all toward an ultimate and more universal answer to that question which they only approach in a superficial way. Land and building speculation continue to be the prime motives behind all housing undertakings, with the exception of those where there is sought a certain result which may be measured in terms of labor stability.

As a result, we are continually piling up a more and more mountainous barrier between society and the democracy we profess to seek, while our communities, one and all, are given over to speculation, to congestion, and to all the evils of our unchecked policy of development, in which the individual is permitted to take his profit, no matter what loss or damage he may cause the community.

With these bald facts now staring us in the face—with the known condition of landlordism to which the United States has descended as though inexorably doomed to the fate of other nations—with the knowledge of that huge loss in time and money in our war-making activities, due to bad housing and no housing—with the certainty that as a nation we must now boldly face this insistent social and economic problem with which the future of the United States is indissolubly bound up, the Journal of the American Institute of Architects believes that the time has come when we must cease the *futile application of philanthropy and charity* to the house problem, discontinue the hopeless attempt to solve the problem by restrictive legislation alone, and offer a positive and constructive program which may in some manner serve as a basis for future effort.

COMPETITION

OF THE HOUSE PROBLEM

n Institute of Architects and the Ladies' Home Journal

To this end the Journal has organized a competition to be held along new lines and by means of which it is hoped that there may be created in the United States a more fundamental knowledge of all the factors which govern the problem of decent houses for all workers.

In order that this knowledge may have the widest possible diffusion, the Journal has arranged with the Ladies' Home Journal for the publication of the winning solutions of this competition in its pages as well as in those of the Journal of the Institute. The competition will be in three parts:

PART I. THE SOCIAL PURPOSE
PART II. THE ECONOMIC METHOD
PART III. THE PHYSICAL PLAN

All competitors will be required to submit the following:

Under Part I, a Thesis in which there shall be set forth the social purpose which house-building should seek to attain.

Under Part II, there must be described the proposed economic method of financing and administering the community to be created and maintained without likelihood of slums and the general deterioration which usually has accompanied unchecked private development.

Under Part III, there shall be submitted a rough sketch plan to show the physical scheme of the proposed development. The prizes, which are offered jointly by the Journal of the American Institute of Architects and the Ladies' Home Journal, are as follows:

THE WINNING SOLUTION . . .	**$1,000 00**
THE SECOND PRIZE	**500 00**
THE THIRD PRIZE	**250 00**
THE FOURTH PRIZE	**150 00**
THE FIFTH PRIZE	**100 00**

The competition is open to all citizens of the United States and Canada, who may enter singly or in groups as they desire. All treatises and plans must be sent prepaid to the office of the Journal of the American Institute of Architects, The Octagon, Washington, D. C., on or before October 31, 1918. No submissions will be accepted unless the requirements as to the three parts are fully complied with. A detailed program will be sent on receipt of request.

The Jury will be as follows: Thomas R. Kimball, *President of the American Institute of Architects, Chairman;* Louis F. Post, *Assistant Secretary, Department of Labor, Washington, D. C.;* Thomas Adams, *Town Planning Advisor, Commission on Conservation, Ottawa, Canada;* Herbert Quick, *Farm Loan Board, Washington;* Lawson Purdy, *Chairman Committee on New Industrial Towns, New York City;* James Sullivan, *Representative of the American Federation of Labor on the Council of National Defense, Washington, D.C.;* Edith Elmer Wood, *Legislative Authority, Philadelphia;* Frederick L. Ackerman, *Architect, New York City;* Milton B. Medary, Jr., *Architect, Philadelphia.*

The Architectural Incompetence Revealed by Some Registration Laws*

By D. EVERETT WAID

IT frequently has been said that the public does not understand the function of the architect; that the public does not understand the reasons for his association (which it terms a trust or union) or his attitude on preliminary service, competition, and professional practice.

Very true, the public is not educated to understand the architect's function. And why? Is it not because the architects have not educated themselves to fulfil those functions? Is it not because the profession does not yet fully deserve to be trusted to conceive and execute the projects which ought to be put into our hands?

Perhaps the members of the Institute do not fully appreciate the condition of our profession as a whole. Let me try to tell you what registration boards have an opportunity to see.

The New York Board, under our registration law of that state, can refuse to register any architect who was in practice when the law went into effect if he is not, in their opinion, entitled to a certificate of competency. The Board has issued certificates to those who presented satisfactory evidence, but, in cases of doubt, called in the applicants for personal hearings. These men were, one at a time, given a verbal examination and each was addressed something like this:

"Please consider yourself as an architect having an interview with a client. Just imagine that the five members of the Board around this table are a building committee who are charged with the responsibility of building a bank or a church and wish to ask you various questions for advice and information."

Then would follow a series of questions, such as a keen, able man of affairs is always firing at his architect, and some questions more technical. There were questions about fees, contracts, kinds of foundations, soil-loads, stresses on concrete, kinds of material for floor surfaces, advantages of different systems of heating, difference between a direct and indirect light fixture, some questions about principles of planning and styles of design. Ofttimes two or three questions brought answers which showed at once that the candidate was quite competent to practise architecture. It was like a real musician striking a chord. In other cases, the ignorance of men who claimed to be practising architecture was simply appalling. Some men who had lived in New York City all their lives never had seen the Morgan Library, which every man in this convention has made a pilgrimage to see, and they did not know the style of St. Thomas Church on Fifth Avenue. One man had frequently passed by the new Municipal Building but "had never taken any notice of it." Tennessee marble one candidate thought a porous, soft stone which could not be used out-of-doors. The New York Board has rejected 500 such men and should have rejected others whom they registered. Is it any wonder that our profession is not held in the highest respect by the public?

If there is one thing that will give a registration board a sinking feeling, it is the statement that a candidate got his architectural training in a correspondence school.

If there is one answer that came oftener than any other to questions asking for the items of practical information which an architect should be able to give his client off-hand, it was, "I don't just know—I would have to look it up in a handbook." Then we painted vivid pictures of an architect excusing himself to a meeting of bank officials and going out to look at his book and then coming back to tell them what the handbook says should be done. We asked such an applicant if, for his sick child, he would call a physician who had never seen a case of scarlet fever and would have to look up his book before he could write an everyday prescription.

Many of the younger men were encouraged to read our booklet to find out what an architect ought to know, to work hard and come back for an examination. But many of the 500 rejected were hopeless. We hang our heads with humiliation often enough over our own shortcomings as architects, but interviews with many even of the 1,500 admitted made us blush over the sorry credit of the profession.

Our examinations brought before us three types of incompetents, the mention of which may be of interest:

1. The shrewd real estate man who has picked up some knowledge of letting building contracts, who can talk building investments, and knows how to get work and hire draughtsmen to do it.

2. The young fellow of native ability, an all-round draughtsman who has had the courage to start out for himself, but who is sadly deficient in training to fit him to do creditable work.

3. Brilliant and clever designers in the office of many a prominent architect, young fellows who can make beautiful designs and stunning renderings, but who have been kept doing one thing without ever having even thought of many of the essentials needed to fit a man for independent practice.

Incidentally, let me say that I have a few copies of the booklet on architecture, issued in New York, which I will be glad to give to those interested. The booklet contains the law and a syllabus of examinations which is intended as a guide for study, to outline to the student what he ought to know in order to be qualified to practise architecture.

Only five states out of fourteen mention any requirements for the general education of an architect. One of these five accepts "primary school work," two require a high-school course, and two go further and add "such courses in mathematics, history, and one modern language as are included in the first two years" of a college course.

*From the remarks of Mr. Waid at the annual convention in Philadelphia, April 25, 1918.

ARCHITECTURAL INCOMPETENCE REVEALED BY REGISTRATION LAWS

Some states require only a "good moral character," while others demand two or three years of practical experience in an architect's office before taking the technical examination. In some states, graduates of architectural schools are permitted to practise without experience. Several states require two or three years' experience first. In one state, a non-resident architect, even if previously practising in the state, is forced to take a new examination or else share his fee with a resident architect. Another state also extends leniency toward the non-resident architect on condition that he will take a resident architect into partnership or association. This has the flavor of a protective tariff applied to the practice of architecture in a way not entirely creditable to the profession.

The standards of technical education in the several state laws are various and indefinite. Considering the powerful influence which such laws, through the several state boards of examiners, will exercise over the curricula of architectural schools, it is of the greatest importance that these standards should be as nearly uniform as possible. The Institute has a great opportunity to coöperate with these state boards by helping to fix upon adequate standards of education for architects, both general and technical.

Aside from educational requirements, there are differences in this group of registration laws for fourteen states which cannot be accounted for entirely by local conditions. Fees for registration vary from $5 to $40. One state has no annual fee, while most charge $5 to $10, and no doubt that annual charge is necessary to meet cost of administration. The penalty for violation of the statute in one state is a $50 fine. In others, the maximum runs as high as $500 fine, plus a year's imprisonment.

The two most frequent and serious defects in these state laws are: First, the want of adequate educational standards; and, second, the requirement that everybody who does architectural work must call himself an "architect," thereby creating unnecessary opposition and competition.

The requirement should be quite the *contrary*, namely, everyone who wants to call himself an "architect" must qualify. But let anyone do architectural work who pleases, so long as he uses his legitimate title of "builder" or "engineer," and not that of "architect."

The whole basis of registration laws should be the education, ability, and training of architects. As soon as the possession of the title "architect" means a definite high-grade qualification, the line will be clearly drawn before the public. The architect who is really qualified will have no occasion to fear competition, provided only that there is no imposition on the public, and this copyright on the title architect, plus his own ability, will be the guarantee.

The fight in Illinois between the architects and engineers has resulted in the enactment of an engineers' license law which nullifies the architects' license law, so far as engineers are concerned, and leads them into a sort of direct competition with architects, which probably they never would have thought of had they not been driven to it by the strictures of the architects' law.

In New York, the engineers have no quarrel with the architects' registration law, since it does not forbid them doing buildings so long as they do them as "engineers." The effect of this is very interesting. Those engineers who make a specialty of designing mills and factories find it to their advantage to possess the title "architect." Some of these firms are doing work which is architectural in character and artistic to a marked degree.

In such cases the Board is glad to issue certificates. Certainly this encourages the engineer to respect his obligations to give architectural quality to the exterior of his structures. If registration laws can encourage partnerships or association between architects and engineers, it would be a promise of long-hoped-for improvement in the artistic quality of bridges and other engineering works. That alone would be no small achievement. But, on the other hand, what a salutary reaction on architects will be the influence of engineers, in coöperation with architects, arousing them to their present reprehensible shortcomings in matters of practical construction.

Finally, since many states will undoubtedly pass registration laws in the near future (four states did so in 1917), and since many of the fourteen states now having such laws are more than willing to amend them, it is a matter of great importance that the Institute should publish a model law. The endorsement by the Institute and the enactment of a high standard law by several states will make it less difficult for other states to secure a good law instead of a bad one.

NOTE.—The model law referred to will be issued very shortly. Address the Executive Secretary at The Octagon, Washington, D. C.

Letters* from an American Architectural Student in France

August 19, 1917

I suppose that I told you last time about the indefinite postponement of my permission. They have suspended all furloughs until the excitement is over. This will probably make it a month late. I do not really mind, though, as I will get it some time, and, besides, I would not miss this attack for anything. It begins to look as though it were going to be a regular "offensive." We have had such beastly weather lately that a permission would have seemed wasted. It has rained for close on three weeks—not a steady rain, but showers, showers, showers, and little sun, and everyone and everything is cold, clammy, and covered with mud which is the consistency of glue and clings to everything. Judging from the roads about here, No Man's Land must be a veritable sea of mud and the trenches almost untenable.

Yesterday about twenty-five infantrymen came in with trench feet, which is extraordinary for this time of year. The disease is somewhat painful and, strange to say, contagious. It appears to be, practically, catching cold in the feet. When they come in their feet are all swollen and blue. They keep them in the sun for a while, and they be-

*The letters of Edmund Randolph Purves, continued from the March number.

come all red and inflamed. The man having it gets little sympathy and is usually made to walk, lame as he may be. You see, it can be prevented, and there is always some of it just before an attack. These fellows are so fed up with war that trench feet are really a relief—almost a case of real "cold feet." In the English army it is a court-martial offense to have bad feet. Personally, I do not see why standing in water day after day should not have a bad effect on one's feet, but the authorities evidently know to the contrary.

The Germans now have a brand-new kind of gas which is pretty effective for awhile, but, mercifully, it later wears off, and I believe that unless a man gets it very badly, it will not kill. Do not think, however, that the Boches, are using it for humanitarian reasons, but entirely for scientific and practical purposes. The old-fashioned hologen gases gave one a sensation of having an attack of double pneumonia in fifteen minutes, and either killed a man or put him out of commission for life. But then gas-masks were invented, and, besides, those gases had the disadvantage of being both odorous, visible, and slow-moving, hence they soon lost their prestige. This new stuff is a liquid, comes in shells which can be sent far back, and favorable wind conditions do not have to be waited for. When the shell breaks, the liquid spreads about and the gas arises and permeates the atmosphere in that vicinity. It is invisible, does not smell, and is very effective in a way. The shells explode with very little noise, and are very insidious. They make a man feel all in, down and out, and so come in handy for destroying morale, stopping battery fire, and for hindering the *ravitaillement*. Besides, if this liquid touches the skin, it makes terrific burns, and even the gas itself does, in concentrated quantities. They have been using this gas a great deal lately on the road up to our *poste* and have created much havoc with it, as its novelty has not worn off yet. The lesser victims look like men suffering from very bad colds, their eyes closed and tearful, their noses running, and faces pretty well swollen. Moreover, it appears to cause some internal trouble, producing nausea. The men that get it bad are in pretty poor shape when they come in—black, blue and green in the face, unconscious and breathing hard. The other day one man still had his mask on, but every bit of exposed skin, hands, wrists, and neck were terrifically burned—great blisters, as if some one had touched red-hot irons there.

Besides putting gas on that road, they have lately been shelling it, and night before last they wiped out an entire convoy. It certainly is a mean road—dark, dusty, and dangerous—and one is even denied the view of the lines. In fact, one does not feel there the thrill that occasionally comes in this war. Just prosaic traffic work; everything moves at a snail's pace, and every so often a shell comes in and messes things up a bit. A most defenseless sensation—that of being caught like a rat in a trap. Once in a place in the traffic, it is difficult to move out. How the French hate it! Just dull, mechanical murder, or worse, from their point of view.

August 29 (Paris, "permission").

When we reached camp, I was told to be all ready to leave in half an hour for the *poste*, and to stay for an indefinite length of time, maybe two or three days. I scurried around, collected a couple of sweaters and a few other necessities in the way of a flashlight and camera. Five of us were sent off in my charge, each equipped with tins of emergency rations, two gas-masks, and lots of advice.

We went up to Section 18's barracks and waited there for our turn to go up to the *poste*. I suppose that I have already told you all about that road up there. It certainly is a "peach" and has lately degenerated into a sort of abattoir—there are so many horses killed on it every night, also men. About 10 o'clock at night I was sent up. Several drivers had come in, coughing and rubbing their eyes, complaining of gas, and one had "lost his lunch." His case, I think, was more alcoholic than anything else. Nevertheless, it was with the gravest misgivings and the hollowest of stomachs that I started out, and my condition was aggravated considerably by a little calamity howler who shook my hand as if he never expected to see me again.

The night was good and dark—all such nights are—and, to make things easier, the road usually taken was being shelled pretty accurately, consequently I had to go through the town, a rather roundabout route. On the other side of the town a connection broke, and I did a piece of repairing in the dark of which I am quite proud. It was a terribly slow trip—move ahead about fifty yards and then wait several minutes. The traffic was frightful.

Finally I reached the corner where we turn off to go up to the *poste*. From there on the road was highly dangerous—dark and disagreeable, with the big guns banging off most unexpectedly, and the flashes blinding one with aggravating persistency. I stopped there and asked the military *gendarme* if there was any gas ahead on the road. He said that they had been throwing in lots of gas-shells, but that he thought it had died down. At all events, I took my mask out of the case, hung it about my neck, and proceeded. The road is about a mile and a half to two miles long, and it took me a good hour to get to the end of it. All one could do was to get into a place in the line and move along with it. It was too dark to try to dodge in and out, and, moreover, the empty artillery caissons which came tearing down the road made this maneuver rather hazardous, even in broad daylight.

The road at one place passes through a very slight valley, an almost unnoticeable drop, but a place where the gas hung low. Up to this point I had not used a mask, in fact, I had quite forgotten about it, but an artillery wagon which thundered past, both men and horses wearing masks, brought me to, and then suddenly I got a good whiff of it—a strong chlorine smell that made one's eyes smart and run and the back of one's throat feel "funny." I lost no time in getting my mask on, and I drove ahead. After awhile, I cautiously took it off again and, finding everything all right, left it off.

A tie-up in the traffic, which threatened to last some little while, induced me to leave the car and walk on ahead to see what chance I had of getting through. There wasn't the slightest. I stopped and had a little chat with a *camion* driver. He certainly was sick of the business, and said that this was his first trip on this road. It also happened to be his last, for an hour later all they found of him was a pair of legs, charred at the ends, and it makes me rather nervous to think how close I came to being in his place. Oh! this courageous hot-air stuff is fine at a distance, but life, at times, appears very sweet and pleasant. I

don't want to be killed—what is the use?—and yet why should I take especial care of my life when nowadays lives are worth so little? It is perhaps just because we want to hang on and see all we can.

Finally things moved on, and I proceeded about seventy-five metres to the road down which we turned to park our cars in the lee of a wall, close by a friendly *abri*, away from the main road. Just after having left the car, I heard several shells in the direction of the main road, then a loud report and a great flare. By this time I was safe underground and stayed there for two or three hours, as the Germans started looking for batteries all about the place, and then it was continual "swish, swish," with the inevitable "crump" of the bursting shells, and the *éclat*, débris, would come rattling and falling around.

Three times a fellow in Section 18 tried to get up to the *poste* by the road, but found it impossible and dangerous. Finally he got there by way of a communication trench, and, upon returning, told me about the *camions* that had been hit on the road. They turned out to be the *camions* that were just ahead of me and were full of ammunition; later I saw the result.

Toward dawn, I could not resist the temptation to see what was going on, so I stepped out, walked along the trench a way, climbed up and looked over the top, and I saw something which I shall never forget—the *tir de barrage* of the French before they left the trenches. (They went over the top at 5 A.M., I afterward learned). It was like looking out into another world. The dawning had barely started, and everything was misty and unreal. There was a peculiar hammering in one's ears, and whenever one looked up at the hills the flashes of the trench guns could be seen, like the little spurts of flame in the Doré pictures of the "Inferno." It was strange and wonderful, not at all like war, rather like some electrical display.

Soon we received word that the road had been cleared, or rather that a path had been cut through the débris. Of all the gruesome sights I have seen that was the worst. It was really perfectly ghastly. You see a shell had hit this *camion* loaded with explosives, consequently it had gone up in smoke, but in doing so had set fire to another *camion* and two artillery caissons. Of course the men in them had been caught like rats in a trap. It was the narrowest and most tortuous sort of lane that ran through the muck, which you could smell long before reaching it. The first thing was an overturned, charred caisson, the horses lying beside it, all shot to pieces and having bled profusely over everything. Then there were the remains of the *camion*, smouldering away, the odor of burning rubber mingling with that of burning flesh—a fetid combination. All about were pieces of clothing, still smoking, and pieces of flesh within them. You see, everything in the middle had been quite blown to bits, and in one place I had to turn aside to keep from running over a pair of legs that lay smoking on the road, with the feet blown off, leaving the bone, blasted and protruding. Further on were more horses, one thoroughly crisp and baked, and some minus legs, heads, and other parts, with their entrails lying across the road. Then there was more wreckage—animal, mechanical, and human—twisted bars, burnt leather, burnt everything, and the bodies of the drivers lying along the sides of the road in every conceivable position, some apparently without a mark on them, others in unmentionable death.

The *brancardiers* and *genie* corps were already hard at work, and they did their job quietly, quickly, and thoroughly, for an hour or so later all that remained were the horses, dead and dying, and the broad blood stains on the road. I suppose now that I have seen some of the horrors of war, they really are not so frightful as one would imagine—not if one looks at them the right way.

Think how lucky the "man of the pair of legs" was; his end must have been quick. It is the long suffering that is the real horror—the going back home, maimed, disfigured, helpless, or an idiot (which last case has happened too often). That man's family will never know how he died, will never have the pain of seeing his charred, mutilated remains, but will be consoled, I hope, in the fact that he died gloriously on the field of honor, for, to my mind, the field of honor is not bounded by No Man's Land, but extends far back, even as far as the despised road-mender, who occasionally does his bit under fire.

I reached the *poste* finally, and immediately got a load of men who had been injured in the German barrage before the show really started. They were quite excited about it and gesticulated with wounded arms in a most dangerous manner. The French really, I believe, like to fight. That trip to the *tirage* and back passed quickly, for by this time I was rather excited myself, and felt as if I were really in it—a most wonderful sensation. You can do anything then.

The next trip started in with a deal of excitement, which kept up all day. It began to get boiling hot, and the bodies of the horses on the road were swelling and stinking and covered with flies. There must have been at least twenty-five in one mile. (They were left there for three days, the only thing done being to sprinkle them with quicklime, which made it worse.) No wonder some began to call it "slaughter-house road."

There was a lull in the work on my third return to the *poste*, and I had an interesting time with the prisoners. There were a great many of them, and so different from what I had imagined or read about. They were, for the most part, pretty fine specimens, healthy, tanned, straight, about 50 per cent of them quite young—seventeen to twenty years—from the 109th, 110th and 111th Baden Regiments. They worked willingly, well and long, helping with the French wounded, and were talkative and seemed altogether glad to be prisoners. It was funny to see several of them together at times, walking down the roads, without guards, carrying stretchers. The French treated them wonderfully, laughing and joking with them, and one would see *camion* loads of wounded from both sides going to the road, all singing and carrying on as if they were going to a picnic instead of a hospital. One instance was very funny. A French artilleryman and a German infantryman came swinging down the road, arm in arm, caps exchanged, and both most gloriously drunk. On reaching the *poste*, the Boche, who had a slight wound in the arm, took a most touching farewell of his new-found comrade, who went swaggering on. Any hostilities after the fray were always quieted by the priests, who really work exceedingly hard in the field and make little noise or show about it. And they are not impressed with their goodness, as are some members of well-known benevolent institutions. I saw a

priest come with a wounded German and make the French give up a seat to him—just a little thing—but it counts.

I talked with a good many Boches, especially one gentlemanly looking boy of eighteen who came from Heidelberg. He was much interested to know if I had been there, and told me his address and many other things. They all say about the same thing—little food and no future—coffee in the morning, so much meat, so much sugar, so much of something else; for lunch, the same thing; for supper, only tea with a little Schnapps in it.

The French *brancardier* gave several of those Boches the meal of their lives. It was pathetic. One old *brancardier* would say something about the terrible Boche, only to meet with a storm of protests—"He is so young, so hungry," and straightway they bring forth bully beef, wine, and bread and stand around to watch them enjoy it.

While we were there, several shells came in close by. One landed quite close, striking a squad of *genie*, killing several and wounding a good many others. Of course, we all made a dive for shelter, but the Germans out there were quietly smiling, and one of them said that he did not see any cause for worry; they had listened to such things for many days.

A little later I was sent on up to a *poste*, heretofore unapproachable. The road was bad, but passable at one time. I ran through a field. There were shells falling all the time around there, but none very close. What they were shooting at I don't know. The damage they did appeared accidental. On reaching the place, it proved to be a French dressing station—very interesting.

The German prisoners were hard at work there, and I wish you could have seen me at one end of a stretcher, with a sweating, cursing, fat little Boche at the other, go plodding to the ambulance under a boiling sun, through that blasted field.

The driving from that time on began to be a ticklish business. The shells kept coming in with such irregularity as to make it a trifle disconcerting. On my next run back from the *poste*, which happened to be some time later, I stopped off to have lunch at camp. During that time I looked about the *tirage*. What a change there was! The line of ambulances waiting to get in stretched way down the road, and in the courtyard the scene was one of confusion and clamor—auto-ambulances getting all twisted up with each other—excitable Frenchmen yelling vain orders, and stolid British drivers gazing calmly on. The part not taken up by the cars was covered with stretcher cases—moaning and groaning—and inside the corps of doctors was working feverishly, a captured German surgeon-major looking after his own men. I went back into the garden and that, too, was full of wounded, limping, walking and crawling on their hands and knees, Boche and French, to the big tent where the sitting cases were being looked out for.

In the afternoon I started back again, passing great convoys of prisoners, marching rapidly to the rear. As I neared the place where we parked the cars, I saw the shells breaking near there, throwing up their geysers of earth and rocks—about 8-inch shells, judging from the commotion they created. I began to get into somewhat of a funk, and not knowing just what to do, kept on, as it was broad daylight. On reaching the corner, I found everything in a state of confusion. Cars left all over the road—horses wandering nervously about, and not a soul in sight, except the German *saucisse*, which seemed to have become human and murderous as it gazed silently at us, directing the fire.

I left my car at the side of the road, and, along with another fellow who had come up behind me, started to run. It was God's mercy that no shells came in at the time. For some unknown reason there was a lull. I never have had the sensation of running for my life before, and I can assure you that I don't want it again. It was not a mad dash—that would have been foolhardy, as one becomes excited then and is not on the alert. We dared not take to the trench, as two shells had just landed in it; the road was dangerous on account of nervous horses. So we loped along a little railroad track, ready to drop into the ditch at the first screech. We reached the *abri* in safety, where the French welcomed us with open arms, saying that our comrades had gone out to look for us, having seen us come down the road.

I found the rest of the fellows under a little "bomb-proof," waiting for a chance to get out and away up to the *poste*. (This place was just a stepping-off place, where some cars were kept to prevent congestion. I believe that I have explained this system before.) We noticed that now the shells were coming in about every five minutes, and so we decided to wait until the next one came in and then make a dash for it, which we did, but the best-laid plans most often miss out. The Boche had gotten the range of the corner and started in working on it in order to block the road. They failed in this, however, but did quite a little damage. We ran back, and three or four fellows got out of the mess with their cars, but I had just started for mine when a shell whistled along and I dropped into a shell-hole. The shell burst quite close, and I could hear the *éclat* go whistling over my head, and received a shower of dirt myself. I then scrambled out, reached my car, but had trouble getting it started, which was fortunate, for just then another shell of good size landed about ten yards away. I dropped on my face in the lee of the car, with my heart in my mouth. A shower of dirt and a few rocks were all I received, however, but on climbing up again I saw a hole in the Klaxon, which is right beside one on the seat. I took the thing apart the next day and extracted a piece of shell which I am saving as a souvenir—one of the very few I have. Had I been sitting there in my seat! ! ! But, luckily, the car would not start at first. Well, I got out of there all right, and went on up this time, way up to the place where the French Reserve trenches had been in the morning. Way up there, for some reason, it appeared wonderfully quiet—a lull after the storm—everyone sitting around thoroughly fagged out. French doctors, *brancardiers*, and German prisoners sitting on the edge of the trench, smoking and talking, all very naturally. But up in the air there were three German machines, flying so low that we could see the crosses plainly on their wings, and every now and then the tat-tat-tat of their *mitrailleuses* would break in the quiet of the evening, as they shot down into the trenches.

The wounded were plentiful, however, and I soon had a load and started on my return trip, which, at one time, I thought I would never finish, for, as I rounded a bend in the road, I saw that, ahead, the Boches were still at work

plastering that old corner. It was not a cheerful prospect for me or my passengers. Nevertheless, there was nothing to do but go on. As I neared the place my spirits sank lower and lower, and life struck me as being something desirable. I began to take a very piggish view of the affair.

Finally we reached the spot, and the signs of the bombardment were everywhere—great gaping holes in the solid dirt and débris, and at one place an artillery caisson lay in the road, the horses bleeding and dying before it. How the men escaped I do not know, for there was no one there. They must have got out all right, though, for nobody would take the trouble to remove bodies or go after anything on that spot.

I thought I had got through all right, when two shells came in close by, but, fortunately, landed in soft ground and merely threw dirt all over us. That was my last trip and ended the most eventful thirty-six hours of my life. I was relieved and sent back for a good night's sleep.

Several nights later, a German aëroplane paid us a visit, ostensibly looking for guns, but they dropped four bombs near the barracks—wooden sheds only—killing our French corporal and wounding two of our men—one of them maybe injured for life. We were all asleep at the time. I went to see the *Brigadier* before he died. Poor man, he was over age and had a wife and two children. The *éclat* hit him in the back, severing the spinal cord and piercing his lung. A number went to his funeral but could not find his coffin—there were so many. A company of Territorials were hard at work digging graves as fast as they could. Such is war.

"Signs of Change"

A DEPARTMENT DEVOTED TO THE FUTURE OF THE BUILDING INDUSTRY

SULLIVAN W. JONES, *Associate Editor*

The recent discussion in the Senate on the Housing Bill discloses no evidence that senatorial minds are any nearer an understanding of the crucial need, as a war measure, of housing accommodations for industrial workers than they were six months back. That which caught our interest and turned our thoughts toward a possible change was not so much what some senators said on the subject, as it was what the interested constituents of these senators had been saying, and why. The discussions in the Senate on April 30 and May 1 centered not upon housing, but upon the method by which contractors should be selected for housing projects. The cost-plus contract was torn to shreds, stamped underfoot, and cast into the waste-basket. It had one defender, Senator New, who put up a brave fight, but his arguments failed to make the slightest impression upon the convictions of his colleagues: first, because to them there seemed to be, apparently, abundant, irrefutable evidence that the cost of the cantonments and other projects constructed under cost-plus contracts has been far greater than can be justified or even excused on any grounds whatever; and, second, because the other senators were determined that in the future there should be a wider and more equitable distribution of Government contracts.

We venture the belief that the Senate, and the House as well, was much more deeply interested in securing Government employment for a larger number of contractors than it was in the inordinate cost of work under the cost-plus contract. The means by which Congress intends to secure a wider distribution of contracts is apparently to force the Government to adopt the method of competitive bidding and the lump-sum contract. Here are some of the statements from the Congressional Record:

SENATOR KING: ". . . is this not a very excellent time to give the small contractor a chance to get into the game, into the field of activity again, and rescue the business of the country from a few enormous corporations and trusts?"

SENATOR SMOOT: (Advocating competitive bidding on work costing more than $25,000.) "When you take the upset fee, then the power is in the Board to throw contracts to almost any contractor it may desire. The Board can . . . limit the number of contractors to a very few. It could cut out the great bulk of contractors in the United States. . . . I do not want to put it within the power of the Board to say who shall be the contractor and who shall not. The contract should be awarded to the lowest responsible bidder."

SENATOR KING: ". . . has not the effect of this cost-plus contract business, established by the Government, been to drive into inactivity many of these small contractors throughout the country . . . ?"

SENATOR CALDER: ". . . that (Mr. King's statement) is correct. I know in the city of New York . . . three-fourths of the building contractors are doing nothing at all at this time, and they would be glad to take some of this Government work if given an opportunity."

SENATOR FRELINGHUYSEN: ". . . I believe the only fair way to let these contracts is to give every contractor an opportunity to bid, after due advertisement, and have the bids opened in the presence of the bidders."

Who has been talking to these senators? Anyone familiar with the statistics on Government war construction will answer without the slightest hesitation—the vast army of unemployed general contractors, and another vast army of established subcontractors who have been given no opportunity by either the Government or the general contractors employed by the Government, to render a service. Now, both of these groups are, we believe, wrong in advocating competitive bidding as a cure for the conditions of which they rightfully complain. As a result of competitive bidding the unemployed general contractors might, of course, secure contracts that would not otherwise be given to them. The subcontractor knows that under the lump-sum method, the general contractor would quickly return to his normal practice of dividing his risk and reducing it by employing those productive agencies which in the past have proved sure and economical—namely, subcontractors.

If Congress understood, and, more particularly, if the senators whose remarks have been quoted, understood, the elements of uncertainty surrounding construction work under existing conditions, and the effect of these uncertainties in completely nullifying the contract obligations assumed by the contractor with respect to time and cost, the discussion on the Housing Bill would certainly have taken another direction. It is not an exaggeration to say that the most astute lawyer would find it impossible to draw a lump-sum contract that would be worth the paper on which it was typed. The Government must, and intends to, furnish all materials, but it cannot guarantee deliveries.

The labor situation is wholly beyond the control of any contractor. Knowledge of these things will not deter the contractor from making competitive bids or signing lump-sum contracts. It will, in fact, encourage the most reckless kind of bidding by the most undesirable element in the contracting fraternity, actuated by the sole aim of securing work. The inevitable sequel to such a process will be protracted disputes, delays, and complete failure on the part of the Government to secure housing accommodation quickly.

Competitive bidding and lump-sum contracts will neither answer the needs of the Government nor the demands of the unemployed contractors. Unless these contractors are suffering from distorted reason through brooding over their grievances, and have learned nothing from past experience, they must certainly prefer working under the cost-plus form of contract to working under the lump-sum contract in these days, crowded as they are with uncertainties. What these contractors really want, and what Congress is trying to secure for them, is a more equitable distribution of contracts, and we cannot help feeling that the contractors would have placed themselves in a stronger position and might have exerted a far greater influence for improving the Government's methods if they had frankly talked the real issue instead of resorting to the obsolete, back-door methods of the old-time politician.

Some of the Government departments, particularly the Construction Division, require education on matters of policy and method, and these contractors might have rendered a service of inestimable value to the Government, directly, and indirectly also, through helping themselves and the whole building industry by intelligently applying pressure where it is needed. Their cause is a just one, and has our whole-hearted sympathy, but we are entirely out of sympathy with their methods. A determined and persistent effort ought to be made to convince those Government officials who formulate policy that they are adding fuel to the fire of unrest, and depriving the Government of very great benefits, by failing to use the greatest possible number of existing productive agencies. One official, who has much authority in the selection of contractors, is quoted as saying, in effect, that it was the policy to keep the number of contractors serving the Government down to the smallest possible number, and to confine that number to those who had "made good." What about the hundreds of other contractors who have had no opportunity to demonstrate their ability? And what about cases where second and third contracts have been given to contractors who have not "made good" on the first? The size of an organization, in these days when contractors underwrite construction projects, is no indication of organization efficiency. As some of the senators have said, the cost of the work has been inordinately high. The contractors' overhead expense, paid by the Government, has been, as a rule, out of all normal proportion to the cost of the work. The Government has paid liberally for services which, in many cases, it has not received.

The Government cannot escape its share of responsibility for the existence of these conditions. It has failed to check or correct them. In some cases the officials in charge in the field have dictated to the contractor the method of handling the work and the character of his organization, both of which indicate an absolute ignorance of the usual methods and of organization. In some cases the Government has duplicated the contractor's organization. The Government's field expense has run as high as 10 per cent of the cost of the work, and this does not include the overhead expense in Washington. If work were conducted by private individuals during peace times on any such wildly extravagant scale, there would be no building industry. The unemployed contractor has a splendid case, and he ought to present it properly, unselfishly, on the ground that it is his right and privilege to serve the Government at this time.

Obituary

George W. Rapp

Elected to the Institute as a Fellow, 1882
Died at Cincinnati, Ohio, January 10, 1918

Goldwin Starrett

Elected to the Institute in 1915
Died at New York City, May 9, 1918

Goldwin Starrett was born in Lawrence, Kan., September 29, 1874. His education began in his mother's school for girls in Chicago, where he enjoyed those unique advantages which, as a child, left that impress upon his nature which made him so beloved by those whom be gathered about him. His studies were pursued under special tutors, and he then entered the Engineering Department of the University of Michigan, from which he was graduated in 1894.

Thence to the office of D. H. Burnham in Chicago, where be remained for four years, leaving there to join the George A. Fuller Company, where for two years he was superintendent and assistant manager. During the next four years he associated himself with the Thompson-Starrett Company as secretary and assistant general manager, and another four years were spent with the E. B. Ellis Granite Company.

In 1908 he established himself as an architect in New York City, and shortly thereafter formed the firm of Goldwin Starrett and Van Vleck. About a year thereafter, Mr. Orrin Rice was admitted to partnership, and, in 1914, Mr. (now Colonel) W. A. Starrett joined the firm, which then became known as Starrett & Van Vleck, Mr. Goldwin Starrett becoming the senior partner.

The Philadelphia Chapter Medal Awarded to Messrs. Day & Klauder

At the last meeting of the Philadelphia Chapter, the report of the Jury to award the Chapter Medal was read in connection with the recent annual Architectural Exhibition. The medal was awarded to Messrs. Day & Klauder for the Princeton University dormitories and dining-halls. The Jury was composed of Bertram G. Goodhue and John Wyncoop, of New York City, and Thomas L. Kellogg, of Philadelphia.

Structural Service Department

D. KNICKERBACKER BOYD, *Associate Editor*

In connection with professional societies, organized bodies, and the following Committees of the Institute, working toward improvements in building materials and methods, and higher ideals in the sheltering of humanity:

BASIC BUILDING CODE — CONTRACTS AND SPECIFICATIONS — FIRE-PREVENTION
MATERIALS AND METHODS — QUANTITY SYSTEM

The personnel of these Committees for the ensuing year will appear next month, together with that of the new COMMITTEE ON STRUCTURAL SERVICE (concerning creation of which see 5B1)

CONTENTS

FIRE-PREVENTION AND -PROTECTION ISSUE

Last year this issue consisted of two sections, the first devoted to Fire-Resistive Materials, the second to General Building Construction. The Wood issue followed. This year all materials of general construction, including wood, and with the exception of metal and plastic products, have been covered in the Serial Numbers preceding this.

One issue, therefore, with cross references to the materials already treated and to metal lath taken in connection with stucco, and to other metal and plastic products treated in Serial No. 11 of the Structural Service Book, Vol. I, and to Wire Glass in Serial No. 12 of the same (these will appear in later Serials also), will cover the general subject of Fire-Prevention and -Protection.

Features relating to electrical installations and to gas equipment will be described in the two next following Serial Numbers.

SERIAL NO. 5, MAY, 1918

INDEX TO SUBJECTS TREATED IN THIS ISSUE

(For index of materials previously treated, see Index on page 273 and General Index to the Structural Service Book, Vol. I, 1917)

Departments of the U. S. Government, Associations, and Other Bodies **5A**
Architects, Engineers, and Fire-Prevention—Lectures and Educational Work **5B**
Reports on Fire-Tests of Materials and on Buildings under Fire **5C**
Fire-Protection and Fire-Prevention: Buildings in General **5D**
Vertical, Horizontal, and Sloping Features of Construction **5E**
Exits, Stairways, and Fire-Escapes; Safety to Life; Slipping Hazards **5F**
Contents, Sprinklers and Other Protection Equipment **5G**
Scuppers, Inserts, and Devices, **5G3**. Tanks, Containers, and Reservoirs, **5G4**.
Lightning Protection **5H**
Fire Insurance **5J**
Publications Available in the Files of: **5K**

Departments of the U. S. Government, Associations, and Other Bodies **5A**

U. S. Bureau of Standards. **5A1**

In addition to the functions and organizations of the Bureau described under Serial No. 1, January, 1918, its activities with respect to coöperation in testing of columns and to **investigations, tests**, and the **promulgation of fire-prevention data** are described in detail in the Structural Service Book, Vol. I, Serials Nos. 3 and 4. Résumés of these, with the addition of work since undertaken, are given under each subdivision in this Serial Number, including the fire-tests of building columns, which are described in the report of the Committee of the American Institute of Architects, printed under 5C1, where references will also be found to other activities and to publications giving detailed accounts of the types of columns, materials, methods of tests, and tables.

Considerable correspondence has been carried on with engineers, state fire marshals, fire department officials, and others interested in **fire-prevention work**, and the Bureau has coöperated with committees of the National Fire Protection Association in their several lines of work, especially with the committees relating to state building codes, safety to life, etc., and with the Bryn Mawr Fire Prevention Committee in their **investigations on the fire-hazard** in relation to factories in which women are employed.

Work has been done in preparing an **index** for collating information relating to the **fire-resisting features of building construction** and in collecting **data on the causes of fires.**

A section entitled **"Fires in the Home"** has been prepared as a part of a new Bureau circular, *"Safety for the Household"* (5D1*a*).

Other Departments of the Government. **5A2**

(*a*) *The U. S. Geological Survey*, previous to the creation of the Bureau of Standards and the Bureau of Mines in 1910 (as mentioned under 2A), conducted investigations on the **fire-resistive qualities of building materials** and on **buildings under fire**, which resulted in the issuance of publications, the value of which has not diminished with the years. (5C3*b*.)

(*b*) *The Bureau of Mines* is charged with fire-prevention and other safety measures in mines, as mentioned under 2A3.

(*c*) *The Navy Department*, because of its control of floating equipment, as well as of the amount of construction on land under its direction, is especially interested in all phases of fire-prevention. For specifications separately issued by it see 5G2*a*.

(*d*) *The War Department* and the *Treasury Department*, through the

Office of the Supervising Architect, issue specifications for construction in general which are referred to under 4B2.

(*e*) *The Forest Service* of the Department of Agriculture conducts investigations and tests and issues publications with respect to the **fire-resistive treatments of wood**, which are mentioned in the preceding Serial Number under 4C1*a*.

(*f*) *The War Industries Board.* The *Quarterly* of the N.F.P.A. for April, 1918, states:

"The constitution of a **Fire Prevention Section** of the War Industries Board, among the officers and committeemen of which we observe the names of many prominent N.F.P.A. members, reminds us, not only of the importance which attaches to the prevention of fires that may interrupt the high-speed production of war supplies, but also of the two strikingly contrasted attitudes of mind which are found among fire-preventionists at large. On the one hand the extraordinary demands for highly technical service in fire-prevention have given rise in some quarters to the feeling that the present emergency calls only for work of this character and that efforts along other lines are inopportune. On the other side are ranged those who regard the present situation as offering a unique opportunity to arouse popular interest in the subject and thus **develop in the whole community a fire-prevention conscience** that shall outlast the war."

For publications prepared by the National Board of Fire Underwriters for the Council of National Defence, of which the War Industries Board is a part, see 5K3.

National Fire Protection Association. 5A3

Secretary: Franklin H. Wentworth, 87 Milk Street, Boston, Mass.

Publications:

(*a*) (For members only): **Proceedings** (annual); **Yearbook and Directory**; **Quarterly**; **News Letter** (monthly); **Index** to all subjects covered in the printed records; **Bulletins**, **Papers** and **Reports** (at intervals), many of which are referred to under appropriate subdivisions in this issue.

(*b*) (For general distribution): **Standard Regulations** for Fire-Protection and the Safeguarding of Hazards; **Suggested State Laws**, and **Suggested Municipal Ordinances**, for regulating fire-hazards; **Educational**; **Special Bulletins** and **Fire Reports**; "No Smoking" signs. For complete lists of publications issued under these classifications, available to March 1, 1917, see Structural Service Book, Vol. I, pp. 43 and 44, and for any changes in, or additions to, those lists see 5K2 in this issue.

Purposes:

"To promote the science and improve the methods of fire-protection and -prevention; to obtain and circulate information on these subjects; and to secure the coöperation of its members in establishing proper safeguards against loss of life and property by fire."

Has two functions: One, to make the "standards" under guidance of which the fire-waste may be checked; the other, to educate the people in the observance of those standards and point out the grievous economic penalties for ignoring them.

The task of compiling and revising its standards, covering all phases of building construction and fire-prevention engineering, is performed through committees of experts drawn largely from the 130 "organization members," of which the American Institute of Architects is one. Notwithstanding the arduous nature of the service, a large number of committees is always at work adapting old standards or formulating new ones to meet the everchanging conditions of modern life.

The Committees on **Safety to Life**, **Fire-resistive Construction**, **Uses of Wood in Building Construction**, **Field Practice**, **Manufacturing Risks and Special Hazards**, **Protection of Openings in Walls and Partitions**, **Roof Openings and Cornices**, **Tanks**, and **Nomenclature**, are those whose activities are of especial significance in connection with building construction. The work of these committees and of the Association will be found more fully described under 3A3 in the Structural Service Book, Vol. I, and the current activities and reports are mentioned in this Serial Number under appropriate subdivisions.

The National Board of Fire Underwriters. 5A4

General Manager: W. E. Mallalieu, 76 William Street, New York City.

Publications:

Suggested Regulations covering the installation of hazardous and protective devices, **Model Building Regulations and Ordinances** and **Special Reports** on various subjects prepared by the engineers of the Board. A list of the publications distributed by the Board will be found on pp. 44 and 45, of the Structural Service Book, Vol. I, additions to which are listed in this issue under 5K3 and all of which are referred to throughout this Serial Number under the appropriate subdivisions.

Purposes:

Is supported by a pro rata tax upon the 133 principal stock fire insurance companies of which it is composed.

Organized in 1866, it sought to restore stability in the troublous period following the Civil War by a rigorous control of rates.

Difficulties arose, however, which made it necessary to abandon rate-control. This was done in 1877, since which date the National Board has exercised no jurisdiction or supervision of the question of rates, that power being entirely in the hands of local fire underwriters' associations, each having jurisdiction over certain specified areas, as mentioned under 5A5.

In a sense, its name has become a misnomer, since it no longer exercises the functions of an underwriter. It has really become an investigative, standardizing, and distributing organization, dealing with the broad principles of underwriting and fire-protection. In this work it coöperates the best technically trained service it can secure with the wide practical experience of its members.

Its activities are conducted through standing committees under supervision of the Executive Committee and the direction of the General Manager. Most of these committees employ skilled experts who devote their entire time to work planned by the committees. The more important of these committees are described by Prof. Ira H. Woolson in the account which he prepared for publication in the Structural Service Book, Vol. I, under 3A4. Those whose activities are chiefly of interest to architects, engineers, and other constructionists being on **Fire Prevention**, on **Construction of Buildings**, on **Lighting**, **Heating and Engineering Standards**.

The National Board also maintains the important organization known as the **Underwriters' Laboratories**, reference to which is made under 5A4*a*, which follows.

Underwriters' Laboratories. 5A4a

President: William H. Merrill, 207 East Ohio Street, Chicago, Ill.

Publications: **Complete list** will be found under 5K1, and those applicable to this issue are referred to under appropriate subdivisions.

Purposes: Established and maintained by the National Board of Fire Underwriters for service, not profit, and chartered by the state of Illinois, 1901. The work of the Laboratories was mentioned in the January Journal under 1A4*a*, and will be found described on page vi of the Industrial Section of this issue, in which see, also, 5C1 for coöperation of the Laboratories in fire-tests on building columns with the U. S. Bureau of Standards and the Factory Mutual Laboratories.

The work of the Laboratories with respect to accident hazards will be mentioned under a later Serial Number and with respect to electrical matters under Serial No. 6.

Local Underwriters and Jurisdiction. 5A5

The local boards of fire underwriters, or fire insurance bureaus or exchanges, are composed of the insurance companies or their officers or agents; some of the officers may also represent their companies in the National Board with which, however, the local bodies have otherwise no official connection whatever. **Each such organization is a separate and distinct association**, complete within itself, having its own officers and different departments dealing with the special hazards which affect construction, inspection, fire-insurance losses, and other matters relating to the actual business of underwriting within its own prescribed territory.

For the convenience of architects, engineers, and other constructors, who are urged to develop a closer coöperation with these locality organizations as mentioned in the subdivision which follows this, a **colored map** of the United States, 28 x 14 inches, is issued by Ream, Ives & Wrightson, Insurance Brokers, 24 Broad Street, New York City. It shows, in a very complete manner, the **territory under the jurisdiction of the various boards** and bureaus. Price, $2.50.

Associated Factory Mutual Fire Insurance Companies. 5A6

Having grown from the idea of a New England manufacturer who started the system in 1835, this organization now includes nineteen individual mutual fire insurance companies, a list of which will be found in the Structural Service Book, Vol. I, under 3A7.

Inspection Department, Associated Factory Mutual Fire Insurance Companies. 5A6a

Secretary: C. H. Phinney, 31 Milk Street, Boston.

Assistant Secretary and Engineer: H. O. Lacount, 31 Milk Street, Boston.

Publications: For **complete list** of those available to March 1, 1917, which are also referred to under appropriate subdivisions herein, see Structural Service Book, Vol. I, p. 45, and for any changes in, or additions to, that list, see 5K4 in this issue.

Purposes: The Associated Factory Mutual Fire Insurance Companies established in 1886 the Inspection Department, or Engineering Bureau, to take over the work of inspection of all the Mutual risks, the making of plans and appraisals of the properties insured, and the engineering work along all lines of fire-protection engineering previously done by the individual companies for the information of themselves and the Mutual members. Since 1896 the Bureau has also been responsible for the adjustment of all losses.

Other functions and activities of the Inspection Department will be found more fully described in the Structural Service Book, Vol. I, under 3A7, and electrical phases under 6A8.

Factory Mutual Laboratories. 5A6b

Engineer: Edward A. Barrier, 31 Milk Street, Boston, Mass.

Issues no publications, all emanate from the Inspection Department.

Purposes: Established in 1890, the Laboratories are under the direction of the Inspection Department, and the services, primarily for mill owners insured in the companies, are performed without charge to them or to parties submitting appliances as described under 3A8 of the Structural Service Book, Vol. I, and under 1A4*b*, in Serial No. 1, January, 1918.

The following organizations, among others, and exclusive of those concerned with electrical phases of the subject, are interested in fire-prevention matters. The first three listed will be found more fully described in the Structural Service Book, Vol. I, under 3B1, 3B2, and 4A3, respectively.

International Association of Fire Engineers. 5A7

Secretary: James McFall, Roanoke, Va.

Fire Marshals' Association of North America. 5A8

President: James R. Young, Insurance Commissioner, Raleigh, N. C.

National Automatic Sprinkler Association. 5A9

Secretary: Ira G. Hoagland, 80 Maiden Lane, New York City.

The Union. 5A10

Insurance Exchange, Jackson Street, Chicago, Ill.

An organization of stock insurance companies which has jurisdiction over underwriting practices in the middle western states. In addition to electrical inspection, it maintains a Committee on Publicity and Education which has been useful in promoting fire-prevention practices and literature.

Society Advocating Fire Elimination. 5A11

Secretary: Ralph P. Stoddard, 356 Leader News Bldg., Cleveland, Ohio.

An organization composed of the purveyors of fire-resisting building material, conducting an informative campaign in the use of such materials as a means of fire-prevention.

Factory Insurance Association. 5A12

Manager: H. L. Phillips, 266 Pearl Street, Hartford, Conn.

An organization of stock insurance companies formed for the purpose of insuring selected risks which are kept under special inspection by engineers employed by the Association.

Mutual Fire Prevention Bureau. 5A13

Secretary: William Reed, Oxford, Mich.

An inspection bureau maintained by the National Millers' Federation to look after the fire-hazards and improve the conditions of grain elevators and mills. Operates principally in the northern Middle States.

Fire Prevention Bureau of the Pacific. 5A14

908 Merchants Exchange Building, San Francisco, Calif.

Was formerly named "Fire Underwriters' Inspection Bureau." Maintains inspectors at several points throughout the states on the Pacific slope.

National Association of Insurance Commissioners. 5A15

Secretary: Fitzhugh McMaster, Columbia, S. C.

An organization made up of state officials who have charge of insurance matters in the various commonwealths. Principally concerned with underwriting problems.

In addition to the foregoing bodies concerned specifically with the fire-prevention propaganda, there are many **national and other societies** not concerned with structural materials which **recognize the importance of fire-preventive measures** and evidence their interest through the activities of committees or otherwise. For one list of these consult "Constituent Organizations" of the N.F.P.A. Among such are:

National Association of Credit Men. 5A16

General Secretary: J. Harry Tregoe, 41 Park Row, New York City.

National Association of Manufacturers of the United States of America. 5A17

Secretary: George S. Boudinot, 30 Church Street, New York City.

The Philadelphia Chamber of Commerce. 5A18

Has a **Committee on Fire Prevention and Insurance** under the active chairmanship of Powell Evans. Issued April, 1918, a report advocating a bill to fix personal liability for fires due to carelessness or neglect. Also urged, at sixth annual meeting of Chamber of Commerce, U. S. of A. April 10–12, 1918, a resolution requesting the U. S. Government to "initiate and carry forward promptly and continuously to some conclusion a complete study of American fire-waste, -prevention, -protection and -indemnity, etc." This resulted in the action mentioned below:

Chamber of Commerce of the United States of America. 5A19

General Secretary: Elliot H. Goodwin, Riggs Building, Washington, D. C.

At its annual meeting, April, 1918, adopted the following:

"WHEREAS, The subject of fire insurance and adequate protection of property value has become increasingly important, due to the war and its contingencies, therefore, be it

"*Resolved*, That the Board of Directors of the Chamber of Commerce of the United States is requested to consider the appointment of a special committee to study the whole subject thoroughly and to issue a referendum to its membership in the near future with respect thereto."

Other organizations concerned with the manufacture of **metal lath, doors, windows**, and other **metal products** and with **gypsum, asbestos**, and other **plastic products** will be mentioned in later Serial Numbers when those materials are treated.

Architects, Engineers, and Fire-Prevention—Lectures and Educational Work. 5B

It is generally agreed by those who have made a study of this question that architects might have **a colossal influence in the cause of fire-prevention** were they willing to give proper attention to the matter at a time when their buildings are planned. The trouble is that many architects do not realize even the most simple fundamentals of fire-preventive construction. They imagine that fire-prevention means fireproof construction. They do not know that it is possible to build even a frame house in such a way as to greatly decrease the fire-hazard. Even so-called fireproof buildings are not really safe unless the fundamentals of fire-prevention are insisted on. There are repeated cases where buildings of steel and terra cotta and concrete are destroyed because of lack of attention to the fundamentals of fire-prevention, such as enclosure of stairs and elevators, erection of proper fire-walls or the dividing of buildings into restricted areas, providing sprinkler equipment and standpipes, arranging for isolation of boiler-rooms and fire-hazards, like storage of hazardous fluids and materials, etc.

In buildings built of wood there are very simple methods of reducing the fire-hazard which are constantly neglected by architects. Ordinary incombustible fire-stops, built in at the sill-levels and at each tier of beams and to isolate roof-spaces, may be given as instances of what may be done at a comparatively small cost; the proper construction of flues and fireplaces, the proper installation of heating systems and the isolation of the ordinary house boiler are all of them of vital importance. These have all been ably detailed for the benefit of architects and others in the booklet prepared by I. H. Woolson for the National Board of Fire Underwriters, under the title of "*A Code of Suggestions for Construction and Fire-Protection in Dwelling Houses*," which is referred to elsewhere and can be had on application.

In more complex cases it is highly desirable that the architect when designing his building consult with the Board of Underwriters having jurisdiction in that particular district. The architects are assured that the local Boards in various districts are glad to coöperate and give advice with regard to the best methods of fire-protection in each particular case. The important thing is that adequate fire-protection is not only a question of safety to property, for many architects and owners feel that they would rather have a building a little more convenient and pay the extra insurance rate for failure to comply with the best fire-protection methods than be bothered with the obstruction of various preventive features, or go to the extra expense over the original cost. The real danger lies in the colossal injury to business and industry that results from fire and the still greater injury to human life. In some states we are beginning to get the courts to take the view of responsibility for fire which is taken in certain foreign countries, particularly in France. There the owner of a structure in which a fire occurs through defects of construction or through neglect is responsible for the damage to all neighboring property that may result from fire starting in his own structure. In New York state

recently, in a number of cases, owners of buildings in which fires occur through failure to comply with the fire-prevention law have been forced by the courts to pay the cost to the city of extinguishing the fire. Very large sums have thus been collected. Legislation of a similar nature is being introduced in the various states, so that not alone for the necessity of humanity will the architect be required to consider fire-prevention when planning structures, but he will be forced by economic conditions to give due consideration to this subject. (Written by Robert D. Kohn for *The Journal*, May, 1918.)

Committee on Structural Service, A.I.A. 5B1

At the fifty-first annual convention of the Institute, held in Philadelphia, April 24–26, 1918, it was

"*Resolved*, That the Board be instructed to appoint a special Committee on Structural Service, which shall consist of the chairmen of all standing and special committees whose activities are connected with structural phases of architectural practice, the Editor of the Structural Service Department of the Journal, and one or more members of the Institute, as designated and appointed by the President. The chairman shall not be the chairman of any of the component committees.

"The duties of the Committee on Structural Service shall be to coördinate and correlate structural phases of the Institute's activities and to coöperate with departments of the Federal Government, states, and municipalities, and with affiliated organizations in matters where the Institute may properly **render service** toward **improvements in structural materials**, their **safe and efficient application** and toward **higher ideals** in providing for the **health, safety and comfort** of the **occupants** of all buildings."

Committee on Fire-Prevention—A.I.A. 5B2

This Committee is now actively canvassing all the Chapters of the Institute throughout the United States in an endeavor to get them to **create** individual **committees on fire-prevention** for their states and communities. They are being urged to follow the example of the New York Chapter in getting **co-operation with local boards of underwriters** so as to keep architects in the various communities in close touch with the laws prescribed on the subject and the best practice in fire-prevention. It is being urged upon them that they send out, from time to time, copies of the underwriters' reports on current fires with a special comment on the cause of those fires wherever the cause lies in defects of original construction or maintenance. The Committee is very anxious, also, to get **colleges and technical schools**, where architects are trained, to agree to a **special course of lectures in fire-preventive building construction.** For that purpose it is trying to create a special list of competent speakers on this subject who are willing to visit institutions of learning and deliver such lectures from time to time in order that the students may be brought in touch with men of experience through actual practice. Robert D. Kohn, *Chairman Institute Committee on Fire-Prevention.*

Committee on Fire-Prevention—New York Chapter, A.I.A. 5B3

A former chairman of the Committee (which some seven or eight years ago came into existence), Julius Franke, working with the assistance of F. J. T. Stewart of the Underwriters, prepared and sent out a very valuable booklet of general information for architects, with regard to the important points to be considered in the **design of buildings from the point of view of fire-prevention and low insurance rates.** (5D2*h*.)

Since then the Committee on Fire-Prevention has been sending out to the Chapter members such of the fire reports of the underwriters as deal with buildings in which obvious and curable defects of design have contributed toward the fire-loss. These reports are printed by the underwriters and submitted to the chairman of the Committee for his opinion as to whether or not they will be of value to the architects. For reports of value, the Chapter pays part of the cost of printing and mailing.

Particular attention from the members of the Chapter to these pamphlets is directed by a **notice** at the top of each copy stating that a Committee on Fire-Prevention of the New York Chapter, A.I.A., considers this pamphlet **of special interest to architects.** The Committee is now preparing to give as much publicity as possible to the imminent danger in New York City of a general conflagration due to the lack of coal and extremely cold weather, these causes having brought about many frozen sprinkler systems, stand-pipes, hydrants, and even hand extinguishers, as well as hindering greatly the fire-fighting ability of the fire department. Wm. O. Ludlow, *Chairman Fire Prevention Committee, New York Chapter, A.I.A.*

Joint Committee on City Departments—New York Chapter, A.I.A. 5B4

The New York Chapter of the Institute **co-operates** also **with the local Board of Underwriters** through its "**Joint Committee on City Departments.**" In this Committee, delegates of the Chapter, the underwriters, the building trades and the engineering societies come together periodically to discuss questions affecting the building interests of the city, both as to **building codes** and **fire-prevention ordinances.** The Committee is active and very effective, and in the nine or ten years of its history has been successful in impressing city and state authorities with the fact that its opinion on building and fire-prevention legislation is the opinion of an authority. Officials have very generally been willing to listen to its recommendations and, in many cases, have welcomed the coöperation. Robert D. Kohn, *Chairman Committee on Legislation, New York Chapter, A.I.A.*

Committees on Fire-Prevention—Other Chapters, A.I.A. 5B5

See the **Report of the Committee** on Fire-Prevention to the fifty-first annual convention of the American Institute of Architects, which gives a résumé of the replies from the Chapters to the communication from the chairman of this Committee and a list of Chapters which have already appointed committees, and of those which will do so or have evidenced their interest in this important subject.

Theory and Practical Application—Teaching and Lectures. 5B6

(*a*) In connection with the teaching of fire-preventive measures and building construction in colleges and technical institutions mentioned in the report of the Committee of the American Institute of Architects under 5B2, it will prove of significance to read "**The Teaching of Fire-Protection in Architectural Schools,**" a summary of the replies of eleven architectural schools whose graduates are accepted without further examination by the American Institute; in N.F.P.A. *Quarterly* for April, 1918. 3 pp.

(*b*) With respect to the headway which is being made in securing recognition of the necessity for instruction in **fire-prevention rudimentals** in the **public schools**, see various issues of the *School Board Journal* and other educational publications, as well as the N.F.P.A. *Quarterly* and literature.

(*c*) Those who remember the report in the *Quarterly* of the N.F.P.A., April, 1917, on the disastrous fire which wrecked the plant of the Quaker Oats Company at Peterboro, Ontario, will be interested in the remarks made by J. W. Lowell, Jr., upon a paper read by T. D. Mylrea before the Western Society of Engineers. Mr. Lowell said:

"This paper has been of great interest to me, not because of the fact that the Quaker Oats Company lost a great deal of business, not because some insurance company lost many thousands of dollars, but because men of our profession failed in their service to their employers and to mankind. By making this statement, I do not mean to cast discredit on any person, nor to criticize them because ignorance of fire-prevention engineering is general throughout the profession, and is not considered vital enough to be taught in our colleges. I do feel that our profession must concern itself in the future with the **engineering of fire-prevention and -protection.**

"To begin with, engineering students should be taught the theory and practical application of this subject. We who are practising will be benefited greatly by lectures such as the one which we have just heard and others presenting various phases of the subject. Whenever we are called upon to design buildings and groups of buildings, we should bear the fire-hazard in mind as an important factor, and, if we are not competent to solve the problems involved, consult with specialists."

Committee on Fire-Protection—American Society of Mechanical Engineers. 5B7

Is composed of members who have had experience in the subject and are particularly interested in it, the chairman of which is John R. Freeman, president of the Manufacturers' Mutual Fire Insurance Company.

The Committee has not been especially active for the past three years, awaiting results from the investigation of column-protective coverings in progress at the Underwriters' Laboratories in Chicago, but several papers by its members have been presented and published in form for distribution. These will be found listed under appropriate subdivisions in this issue. A recent canvass of the Society shows 390 members engaged in fire engineering.

Other Engineering Societies. 5B8

(*a*) *The American Institute of Consulting Engineers* (1A2*e*) has, among others, a special Committee "on the National Fire Protection Association" represented by A. M. Feldman and Mason R. Strong.

(*b*) *The Western Society of Engineers* issues the *Journal*, the index to which contains references under the classifications "Fire," "Fireproofing," "Fire-Protection."

(*c*) The "*Proceedings of the American Society of Civil Engineers*" (1A2*a*1) contain numerous papers and discussions, many of which are applicable. Each issue of the "Proceedings" also contains a "List of Recent Engineering Articles of Interest."

(*d*) The activities of the American Institute of Electrical Engineers and other organizations interested in the electrical and other phases of fire-prevention will be described in succeeding Serial Numbers.

Reports on Fire-Tests of Materials and on Buildings under Fire. C5

Second Report on the Work of the Underwriters' Laboratories, by the Committee of the American Institute of Architects. 5C1

The report, dated May 1, 1918, brings up to date the work first reported on March 7, 1917, in these columns. The essence of this report is:

The whole **subject of fire-prevention**, judged from the basis of the enormous annual losses, is a most fitting one for **national legislation and complete control**, but in the absence of that, the only avenue left open for accomplishing any comprehensive reform seems to be by appeal to the people, and of course the most available way to reach them is through the architects who build their buildings.

In the face of these awful annual losses it seems clear that the architect should not have to be forced to save his buildings from fire, but he should realize that he is in a position, if he will only take advantage of it, to do more than anyone else in making our future buildings safer and better to live in and occupy and much less destructible by fire than they are now. If the architect, when he plans and designs his building, would only give more thought to how a fire might be stopped or retarded when once started, and how all the occupants might find safe and trustworthy means of exit, many a life might be saved that would otherwise be lost, and the fire and casualty lists of this country would gradually and surely diminish until they would compare favorably with those of any nation in the world.

Every architect, therefore, **is appealed to** by the American Institute of Architects to make a special study of each new problem for the purpose of **providing safe exits** and all possible **resistance to fire**, whether the law or the insurance authorities require it or not.

Information:

For the purpose of assisting the architects in this most worthy endeavor, there has been included in the Structural Service Department of the *Journal of the American Institute of Architects* a most complete and up-to-date list of all the authorities and literature on this subject. Any architect can secure, with little or no expense, full information on all those features and equipments of buildings that have been found by experience to be most effective against fire. In addition to this, all the information and data which the Underwriters' Laboratories have been gathering for years from their tests and experiments are open and free to the architects if they will only use them.

Among the tests which the Laboratories have been making recently are two which are of very great importance to architects. They are the **tests on building columns** and new designs of **fire-retardant windows.**

Tests of Columns and Coverings:

Realizing that the fate of a building, and often of its occupants, depends on how well the columns supporting it will resist the effects of fire, the tests of columns have been made the most scientific and complete of any that have ever been undertaken. The United States Bureau of Standards, the Associated Factory Mutual Fire Insurance Companies, the National Board of Fire Underwriters, and the Underwriters' Laboratories decided to combine forces and try out and settle, once and for all, by real fire-tests, the relative merits of all kinds of building columns. The question of the relative merits of fireproofing for columns came up after the Baltimore fire and the San Francisco earthquake, and was discussed throughout the country by the press and leading magazines. It is now being settled by carefully prepared scientific methods. Over two years ago the preparations were begun, and all the different kinds of columns and all the various ways of fireproofing them were carefully considered, with the view of selecting for test a full representation of all the different types. Accordingly, one hundred specimens were prepared, and the work of testing started about a year ago. Among those made during this year were the metal unprotected types of columns, which it is intended to describe in this report in rather a brief manner and leave the more complicated fireproofed columns for a more complete subsequent report. **It is planned to provide** the architects ultimately with **a table of records and data** so that they may at once select any kind of a column for any sort of a building with full and definite assurance of what it would do in case of a fire.

The Furnace:

In order to prepare for the testing of these columns under the same conditions that would exist in a building, a great furnace was erected that would take a column 12 feet high and impose upon it during the test a load of 256 tons. The furnace was built for applying a maximum heat of 2,300° Fahr. Provisions have been made for measuring temperature of furnace and test column and for measuring the deformation and deflection of the latter. Means have also been provided for applying streams of water under pressure to the heated column.

Unprotected Columns:

Of the **unprotected metal columns** tested, three were of cast iron and eight of various combinations of steel shapes. The cast-iron columns stood up longer than the steel columns, although the failure was more abrupt and complete. The temperature was raised gradually to about 1,300° Fahr. at 10 minutes, and 1,500° at 30 minutes. One of the cast-iron columns failed in 34 minutes and 13 seconds, while one of the steel columns failed in 11 minutes and 10 seconds, and another in 19 minutes and 13 seconds.

These **tests** on the **unprotected metal columns** show how quickly they will fail and cause the building to collapse, even in an ordinary fire, thus proving conclusively that unless the architect takes the precaution to fireproof such supports, his building may collapse, even in a fire of very short duration. The great difference in the endurance between these columns and the protected types became at once apparent in the tests, and when the tables and data are finally completed for all of the tests, the resistance to fire of the various kinds of fireproofing for columns will be fully determined.

Tests of Windows:

The tests of **newly designed fire-windows** established certain facts not previously known which have enabled the laboratories to put their approval and seal on certain windows which the architects will undoubtedly be very glad to utilize instead of the ones formerly used for certain locations. This test has demonstrated that for certain exposures the architects need not provide for great wide fireproof mullions between units of these windows, but, instead of that, in certain locations may use mullions as narrow as 2 inches wide, thereby increasing the light 75 per cent and doing away with wide mullions which were in some cases very objectionable features.

They will also be glad to know that certain windows have been approved for certain locations, in which there may be no muntins used at all and where one entire single sheet of glass may be used in the sash. The limits of the size of these windows, and the area of the glass and the various details of the construction, may all be had in detail by application to the Laboratories. It is probable that later on all the information concerning all of the different types of fire-windows may be tabulated and sent to the architects in convenient form for their ready reference in determining the kind of windows to select for any situation.

In the **next report** of this Committee it is the intention to present complete data and conclusions reached by the Laboratories in regard to the relative merits of all the various columns which they are now testing.

The Committee meanwhile solicits suggestions from architects as to any further or specific service which it can render them individually or collectively. Respectfully submitted,

The Committee on the Work of the Underwriters' Laboratories,
ELMER C. JENSEN, H. WEBSTER TOMLINSON, GEORGE C. NIMMONS, *Chairman.*

Report of the Director, U. S. Bureau of Standards, to the Secretary of Commerce. 5C2

The following extracts are from the current report, 1917.

(*a*) *Fire Tests of Reinforced Concrete Columns:*

The program of coöperative tests, now under way at Chicago (just described), includes but six columns of the reinforced concrete type of construction.

Whatever action may finally be taken with respect to the preparation of an elaborate program of **fire-tests of reinforced concrete columns**, the Bureau concluded that the preparation of such a program, when it is finally taken up, would be very greatly facilitated if there were available fire-tests of a number of such columns of representative types of construction. Accordingly, during the present year, the panel furnace at the Pittsburgh laboratories of the Bureau has been modified to adapt it to such tests, a 600-ton hydraulic ram has been installed to apply a continuous follow-up load to the column in the furnace, and about **30** reinforced concrete **columns have been cast.** The columns include square and round sections, 16 by 16 inches, and 18 inches diameter, respectively, by 8 feet in length, aggregates of different types, and different methods of reinforcement.

During the last few weeks of the fiscal year, several successful **preliminary fire-tests** were made on some extra columns that had been cast for the purpose, in order to test the new equipment and **to standardize the procedure.**

(*b*) *Thermal Efficiencies of Column Coverings:*

A comparison of the thermal efficiencies of the **materials commonly used for column coverings** has been completed at the Pittsburgh laboratories of the Bureau during the year. A short paper, giving a summary of this work and entitled "*A comparison of the heat insulating properties of materials used in fire-resistive construction*," was communicated by W. A. Hull to the annual meeting of the American Society for Testing Materials in June, 1917. (See Proceedings A.S.T.M., Part II, 1917, pp. 422–452.) This comparison of the materials themselves was

preliminary to the investigations relating to the fire-resistive properties of structural units.

(*c*) *Panel-Testing Furnace:*

This furnace, together with its accessories, designed to test wall and partition structural units as large as 12 by 16 feet, was installed last year.

Steps have been taken to secure the coöperation of prominent engineers, representatives of engineering and technical societies, and manufacturing associations in the formulation of a comprehensive program of tests of the **fire-resisting properties** of various types of **partition and wall construction.**

Other Reports. 5C3

(*a*) For **detailed data** on **types** of **columns, materials, methods of tests, tables,** etc., in the Fire Tests of Building Columns, just described, see:

1. Annual Report of the Director, Bureau of Standards, for fiscal year ended June 30, 1917 (1A5*b*1), pp. 40–43, from which the following is quoted:

   "*Witnessing Tests:* Underwriters, engineers, architects, and others having a proper interest in the subject are **cordially invited to visit the laboratories**, when in Chicago, and witness one or more of the tests in progress. The time for the tests is scheduled each week in advance and may be ascertained through inquiry by letter, telegraph, or telephone addressed to Underwriters' Laboratories, 207 East Ohio Street, Chicago."

2. **"Fire Tests of Building Columns,"** Underwriters' Laboratories, issued by N.F.P.A. (5K2*d*29).
3. Article, with same title, illus., in *Quarterly*, N.F.P.A., Jan., 1918.

(*b*) For complete list of reports on **fire-tests** of **materials** and **construction**, and reports on **buildings under fire**, including those of the U. S. Geological Survey, and other publications concerning, also, conflagrations, see 3E1, 2, and 3 in the Structural Service Book, Vol. I, to which should be added the two publications of the N.F.P.A. listed under 5K2*f*13 and 14 in this Serial Number.

(*c*) The Portland Cement Association also issues publication No. 104,

(*d*) The N.B.F.U., through its Committee on Fire-Prevention, issued a Report on the Atlanta Conflagration (5K3*e*).

"Report of Committee on Edison Fire."

(*e*) For illustrated description of **Fire-Tests of Doors and Windows** at Underwriters' Laboratories, see *Quarterly* of the N.F.P.A., July, 1917, pp. 62–71, and see, also, page vi in the *Industrial Section* of this issue.

(*f*) See, also, references to "time temperature curve for fire-tests" under 5D2*a*1 and 5E2*a*.

Fire-Protection and Fire-Prevention: Buildings in General. 5D

For **separate features** of construction, **see subdivisions** which follow this.

Under this heading it is not intended to make specific references to various **materials of construction**, other than their protection, as they **have been treated** previously as follows:

Structural Iron and Steel, 1G, Serial No. 1.
Cement and Reinforced Concrete, 2B, Serial No. 2.
Lime and Stone Masonry, 2C and D, Serial No. 2.
Building Stones in General, 3A to 3G, Serial No. 3.
Brick, Hollow Tile, and Terra Cotta, 3H, Serial No. 3.
Lumber and Wood Construction, Serial No. 4.

In the Structural Service Book, Vol. I: Electrical and Gas Installations, Serial Nos. 6 and 7; Metal Lath, Metal Windows, Metal Doors, and Metal Products, Serial No. 11; Gypsum, Asbestos, Stucco, and Plastic Products, Serial No. 11; Wire Glass, Serial No. 12.

Information Obtainable. 5D1

(*a*) *The U. S. Bureau of Standards* (1A5*b*) has issued:

1. **"Safety for the Household,"** Circular No. 75, contains section on **Fire Hazard in the House**, pp. 82–107. Jan. 10, 1918. 15 cts. from Superintendent of Documents, Washington, D. C.
2. **Annual Report of the Director**, 1917 (1A5*b*1). See extracts under various subdivisions.
3. **"Durability of Stucco and Plaster Construction,"** Technologic Paper No. 70, Jan. 31, 1917. Described under 11D6*c*, in Structural Service Book, Vol. I.
4. For "A Comparison of the **Heat-Insulating Properties** of materials used in **fire-resistive construction**, see 5C2*b*.

(*b*) *The U. S. Geological Survey* (2A1) has issued the several publications referred to under 5A2*a*.

(*c*) *The U. S. Bureau of Mines* (2A3*c*) has issued "Magazines and Thaw Houses for Explosives," Technical Paper No. 18. 34 pp.

(*d*) *The National Fire Protection Association* issues literature fully listed on pp. 43 and 44 of the Structural Service Book, Vol. I, additions to which, since March, 1917, will be found in this Serial Number under 5K2. For additional information it is recommended that the "Index" to all subjects covered in the printed records (under (*h*) on p. 44) be consulted, as therein all papers, addresses, discussions, reports of committees at conventions, and all articles in the *Quarterly* are fully indexed and cross indexed for reference.

See among the various publications and articles the following:

1. **"Fire-Prevention: Its Object and Possible Results,"** C. Heller.
2. **"Fire-Prevention Through Adequate Power and Common Sense,"** C. J. Driscoll.
3. **"Debarment of City Conflagrations,"** Albert Blauvelt.
4. **"Fire-Hazards on the Farm."**
5. **"Factories and Their Fire-Protection,"** F. H. Wentworth.
6. **"Fire-Resistive versus Fireproof,"** "Proceedings," 1904, p. 235, and *Quarterly*, April, 1910.
7. See, **"The Architect and Fire-Protection,"** address by I. K. Pond, "Proceedings," 1910, p. 117.
8. **"Warehouses, Construction and Protection,"** C. H. Patton, "Proceedings," 1910, p. 125.
9. **"The Status of Schoolhouse Construction in the United States,"** address by Frank Irving Cooper, "Proceedings," 1915, lists requirements for construction and fire-protection.
10. **"Planning of School Buildings for Safety," illustrated address by Wm. B. Ittner,** "Proceedings," 1916.
11. **"School Buildings—Better and Safer Fire Protection in Schools,"** J. R. Young, Insurance Commissioner, Raleigh, N. C., who has developed the application of the Philadelphia **smokeproof tower** to schoolhouses for use as service stairways.
12. For other data on **schoolhouse construction**, see, also, Structural Service Book, Vol. I, 12G.
13. For **"Theatres, Construction and Equipment,"** see several references in N.F.P.A. "Index" and Round Table discussion on **"Safeguarding Life in Theatres"** in Proceedings, 1917.
14. For **"Fire-Retardant Materials,"** see N.F.P.A. "Index."

In the *"Quarterly"* see the following:

15. **"Summer Hotels: Hazards and Protection,"** G. Dana, October, 1909.
16. **"The Architect and the Fire Waste,"** C. M. Goddard, 1912.
17. **"Fireproof Construction, What It Is and What It Ought to Be,"** E. T. Cairns, July, 1913.
18. **"Fireproof Building, Its Advantages and Its Weaknesses,"** H. W. Forster, April, 1914.
19. **"Safe and Unsafe Uses of Wood in Buildings,"** S. J. Williams, April, 1917. 6 pp. (Address arranged by Northern Hemlock and Hardwood Manufacturers' Association.)
20. **"Hollow Tile as a Factor in Fire-Prevention,"** W. A. Hull, October, 1917. 8 pp.; illus.
21. **"Fire Prevention and Fire Protection During Construction,"** with notes on construction of fire cut-offs and installation of fire-extinguishing equipment, H. L. Miner, April, 1918.
22. **"Installing Equipment in Concrete Buildings"**—The Use of Inserts; Providing for Heating and Water-Pipes, Sprinkler Systems, Sanitary Plumbing and Machinery, H. L. Alt, April, 1918. 6 pp.; details.

(*e*) *National Paint, Oil, and Varnish Association.* See Reports in "Year Book and Membership Directory," 1917–18, of the Committee on **Fire-Prevention** and **Fire-Prevention Ordinances** and Committee on **Fire Insurance.** The latter includes report of Paint Trade Mutual Fire Insurance Company, with statistics and causes of fires in this industry.

(*f*) *"Official Record"* of the First American National Fire-Prevention Convention, Philadelphia, 1913, contains papers and discussions, among others on **Building Construction, Building Codes, Protection Equipment and Insurance.**

(*g*) See **"A Five-Year's Fight Against Fire-Waste,"** by Powell Evans. Copyright 1912. 180 pp.

(*h*) See **"School Houses and the Law,"** address by F. I. Cooper before the Fifth Congress of the American School Hygiene Association, for lists of requirements for construction and fire-protection.

(*j*) See the **writings variously published** of Edward Atkinson, Ex-Chief William Croker, and Charles T. Main.

(*k*) See **"Fire-Prevention,"** Joseph McKeon. 1912.

(*l*) See **"Natco Hollow Tile Fireproofing as Used in the Construction of Standard Steel-Frame Fireproof Buildings."**

(*m*) See **"Modern Practice in the Design of Bank Vaults,"** *The Brickbuilder*, May, 1916, "Protective Principles and Constructive Methods;" June, 1916, "The Requirements of Small Banks."

(*n*) **"Building Construction that Resists Fire,"** The Results of Exhaustive Tests on Various Methods of Fireproof Construction—H. M. McMaster, *House and Garden*, Jan., 1914; illus.

(*o*) **"Constructing the Unburnable House,"** B. H. Smith, *House and Garden*, Feb., 1917; illus.

(*p*) *Among Handbooks, Pocket-books, and other references:*

1. See *"Crosby-Fiske Handbook of Fire Protection," 1914*, for **"Fireproof Construction"** and **"Improvements for Existing Buildings."**
2. See **"Fire Prevention and Fire Protection,"** J. K. Freitag. 1912. (Chapters listed in *Structural Service Book*, Vol. I, under 4B1*e*, 4C1*b* and *d*, 4D1*a*.)
3. See, also, **"The Fireproofing of Steel Buildings,"** J. K. Freitag. 1909.

4. See "*Kidder's Pocket-Book*," 1916, among other sections the following: (*a*) **"Fireproofing of Buildings,"** Rudolph P. Miller. (*b*) **"Reinforced Concrete Factory and Mill Construction,"** Emile G. Perot.
5. See "*Trautwine's Civil Engineer's Pocket-Book*," 1913, for general **notes and details of construction** and for **"Price-List and Business Directory."**
6. See "*Building Construction and Superintendence*," F. E. Kidder, 1914, Part 1, "Masons' Work:" (*a*) **"Fireproofing of Buildings,"** Thomas Nolan. (*b*) **"Form of Specifications"** (for all parts of a building).
7. See "*Mechanical Engineers' Handbook*," Lionel S. Marks, 1916: (*a*) **"Building Construction,"** Lionel S. Marks, p. 1264. (*b*) **"Industrial Buildings,"** Charles Day, p. 1317.
8. See "*Mechanical Engineers' Pocket-Book*," William Kent, 1916, for **"Construction of Buildings,"** pp. 1385–1394.
9. See "*I.C.S. Building Trades' Handbook*," 1914, for **"Fireproofing"** and **"Metal Furring and Lathing."**
10. See "*Cyclopedia of Fire Prevention and Insurance*," in 4 large volumes, by American Technical Society, 1914. Copyright, American School of Correspondence. Covers **inspection, fire-losses, construction, codes, policies, settlements,** etc.
11. See **"Universal Safety Standards,"** Workmen's Compensation Service Bureau, N. Y. 1914.
12. See "*The Building Estimator's Reference Book*," Frank R. Walker, 1917, for **"Hollow Tile Fireproofing."**
13. See "*Practical Cost Keeping for Contractors*," Frank R. Walker, 1918, for **"Hollow Tile Fireproofing."**
14. See "*Handbook for Architects and Builders*," Illinois Society of Architects, Vol. XX, 1917, for **"Fire Limits"** and **"Fireproof Construction."**
15. **"Insurance Engineers' Handbook,"** Wm. D. Matthews. 1916. 720 pp.
16. **"Fire Prevention and Fire Protection,"** revised by A. C. Hutson, 1916. Handbook of 768 pp. issued by Spectator Company.
17. See various technical periodicals and those devoted to specific materials of construction for a wide range of application.

(*q*) For further information of interest, applicable to subjects under this heading, see pages in the *Industrial Section*, as follows:

1. **Engineering service** in connection with **reinforced concrete** construction, Corrugated Bar Company, p. xx.
2. Suggestions, **industrial buildings**, the publication of the Atlas Portland Cement Co. described on pp. xiii, and, Color Tones in **Stucco**, p. xxiv.
3. Illustrated references to **concrete in construction**, Portland Cement Association, p. v.
4. **"In Enduring Stone,"** Indiana Limestone Quarrymen's Association, p. xxxi.
5. **"Mill Construction"** illustrated and described, Southern Pine Association, p. xvii.

Practice Recommended and Standards Adopted. 5D2

(*a*) *National Fire Protection Association.*

1. The work of none of its committees is more important in connection with building construction in general than that of the **Committee on Fire-resistive Construction.** Its reports in the Proceedings, some of which are also separately printed, are listed below in the order of their presentation, beginning with 1913, all of which will be followed with interest, including the discussions.

1913. **Specifications for Construction of a Standard Building.**

1914. This report grouped fire-resistive materials and completed structures into three classes, according to degree of protection afforded. It defined these in terms of test performance measured by time and temperature (see tables in "Proceedings" of 1914) and gave tentative test requirement specifications for various structural parts of a building. It also **classified buildings according to occupancy** and gave recommendations regarding furniture and fixtures.

1915. **Recommendations for Construction of Private Residences. Recommendations for Construction of Places of Amusement—Theatres and Opera Houses—Assembly Halls—Motion Picture Halls—Amusement Pavilions, Exposition and Fair Buildings, Skating Rinks,** etc.

1916. This report established three **Grades of Construction** for the classification of buildings as a whole in each of several occupancies, designating these as **Grades A, B, and C.** It illustrated their application to the previous report on Private Residences and contained: **Specifications for the Construction of an Office Building of Grade A.**

1917. **Specifications for Construction of Hotels, Apartment Hotels, and Club Houses, Grade A. Specifications for Construction of a Department Store, Grade A.**

This report also describes the work of a conference of technical organizations (referred to under A.S.T.M., 5E2*a*) which completely revised the 1914 recommendations of this Committee as related to classification of fire-resistive construction and test specifications.

1918. A pamphlet is issued in which the reports of 1913 to 1917 inclusive are revised and consolidated into one publication. All duplicate or unnecessary matter has been omitted, and the subjects have been rearranged in logical sequence, irrespective of chronological order. This revision became necessary because of the completion in 1918 of the new **Standard Specifications for Control of Fire Tests, and Classification of Materials and Construction as Determined by Test.** These Standard Specifications, which constituted the report of the Committee for 1918, will be included in the pamphlet as printed for distribution. They were adopted by the N.F.P.A. at its annual meeting in May, and will doubtless be adopted by the other organizations represented in the Conference, above mentioned, which drafted them. They will then become a **National Standard.**

Recommendations for Emergency Housing: The 1918 Report also contains **Recommendations for Improving the Fire-Protection in Existing Cantonments and Emergency Buildings of Wooden Construction.**

2. For report of the **Committee on Uses of Wood in Building Construction,** see complete summary under 4E3*c*1. At the N.F.P.A. annual meeting, May 7–9, 1918, the final revised report was adopted and there is now an established **Standard for "Mill Construction,"** for publication of which see 5K3*e*.
3. The work of the **Committee on Nomenclature** should be followed, and constructive criticism of terms to be used in describing construction is invited. Among the definitions adopted in 1918 are:

Fireproof. The use of the term **"fireproof"** is recommended to be **discontinued.** This general term has been erroneously applied to buildings and materials of a more or less fire-resistive or incombustible nature. Its indiscriminate use has produced much misunderstanding and has often engendered a feeling of security entirely unwarranted.

Fire-resistive. The term **fire-resistive** applies to materials and constructions which will satisfactorily resist fire in accordance with the **specifications established** by the Joint Conference on Fire Tests. (See 5D2, 1918, and 5E2*a*.)

4. See reports of the **Committee on Manufacturing Risks and Special Hazards** in Proceedings and the following separately printed:

(*a*) **Cold-Storage Warehouses**—Suggestions for Their Improvement as Fire-Risks.

(*b*) **Shoe Factories**—Suggestions for Their Improvement as Fire-Risks.

(*c*) **Tanneries**—Suggestions for Their Improvement as Fire-Risks.

(*d*) **Structural Defects—Suggestions for Their Elimination and Protection.** (Particularly with reference to safeguarding existing features.)

5. The **Committee on Field Practice** is responsible for the Handbook of **Field Practice** issued by the N.F.P.A., bound in leather, at $1.50. This is replete with information representing the latest thought of leading fire-prevention engineers and should be closely followed by all those charged with responsibility in safeguarding life and property against fire.
6. See, also, the following among publications of the N.F.P.A. separately issued:

(*a*) **Dwelling-House Hazards—How to Prevent Fires in the Home.**

(*b*) **Schoolhouses, Fire-Protection of.** 16 pp.; illus.

(*c*) **Fire-Prevention Work in Small Cities and Towns.**

(*b*) *National Board of Fire Underwriters:*

See all four of the "Suggested Codes" listed and described under 3A4*d* and under various subdivisions in Serial No. 3 of the Structural Service Book, Vol. I, particularly the two following:

1. **"Building Code"** which will be found to offer invaluable suggestions and assistance on all features of construction, both generally and specifically. In addition to buildings in general and all parts of their construction, the following are separately treated:

(*a*) **Construction and Equipment of Theatres.** Illus.

(*b*) **Construction of Moving Picture Theatres** Having Capacity of Three Hundred or Less.

(*c*) **Assembly Halls: Requirements for Public Safety.**

(*d*) **Tenement-House Law.**

2. **"Dwelling Houses"** contains concise and explicit recommendations on all forms of residence construction, including: General Discussion of Defective Construction in Dwellings and Its Relation to Their Fire-Hazards; Quality of Materials Suitable for Construction Work; Major Structural Requirements to Protect Life and Prevent Spread of Fire; Fire-Stopping; General Precautions for Fire-Protection; and Safety to Life. (Price 10 cts.)
3. **To Regulate the Installation, Operation, and Maintenance of Motion Picture Machines** and the Construction and Arrangement of **Picture Booths** and Audience Rooms.
4. **To Govern the Construction and Operation of Laundries.**
5. **Vaults, Specifications for.** Intended for banks, trust companies and others having large values to protect. Drawn primarily from the point of view of **fire-protection,** but many of the provisions have a bearing on **protection against burglary.**
6. **Hose-Houses for Mill-Yards,** Construction and Equipment.

7. **Standpipes and Hose Systems.**

(*c*) *Inspection Department, Associated Factory Mutual Fire Insurance Companies:*
1. **When Putting in Fire Protection—Things to be Considered.**
2. **Dry Rot in Factory Timbers.** 107 pp. illus.
3. **Fires in Cotton Mills.**
4. **Report on Slow-Burning or Mill Construction,** issued under direction of Boston Manufacturers' Mutual Fire Insurance Company, described under 4E3*g*.

(*d*) See "*Proceedings*" *American Society for Testing Materials*, 1917, Part 1, for Report of **Committee C-5 on Fireproofing**, referred to in detail under 5E2*a*.

(*e*) *The American Society of Mechanical Engineers* (5B7) through its **Committee on Fire-Protection**, has published the following:
1. **Safeguarding Life in Theatres.** John R. Freeman. An exhaustive study of the hazards of theater construction and suggestions for remedying them. 10 cents.
2. **Allowable Heights and Areas for Factory Buildings,** Ira H. Woolson. A compilation and discussion of the opinions of 117 fire-chiefs in the principal cities of the United States. 10 cents.
3. **Life Hazards in Crowded Buildings Due to Inadequate Exits,** H. F. J. Porter. Is a plea for the use of the horizontal fire-escape exit and other features of building construction with respect to safe-guarding life and industry. 10 cents.

(*f*) *The National Lumber Manufacturers Association*, in addition to publications listed under various subdivisions, has issued **"How to Build Fire-Safe with Wood,"** Technical Letter No. 10, by R. S. Whiting, Architectural Engineer, September, 1917. Describes and illustrates "some of the most practical and economical methods which, when applied to wood construction, will make it as 'fire-safe' as this term will apply to combustible material."

(*g*) *The National Education Association* has a **Committee on Standardization of Schoolhouse Planning and Construction**, of which F. Irving Cooper, architect, Boston, is chairman. This Committee will present to the Association certain definite standards in connection with details of construction and minimum requirements of space for stated school activities.

(*h*) *New York Chapter A.I.A.* and the *N. Y. Board of Fire Underwriters:*
1. **General Information Regarding Fire Insurance Requirements** with Particular Reference to **Fire-Prevention.** Pamphlet. 1914.

(*j*) *The International Association of Fire Engineers:*
1. **The Safeguarding of Existing School Buildings against Fire.** See Report published in *School Board Journal*, February, 1917.

(*k*) *Building Codes.* The mandatory provisions of all codes, state or municipal, must **first govern construction** in each locality, as mentioned under 1A5*e*, where quotation is made from Document of the American Institute of Architects about coöperation in observances and improvements.

In addition to the "Building Code recommended by the National Board of Fire Underwriters" which is a proposed standard that has been widely distributed and copiously copied throughout the country as well as used in educational institutions, it is suggested that, as an example of the latest printed word on this important subject, the Building Code of New York City, March 14, 1916, be read, and that its development, through changes officially adopted, be followed. Bulletins giving these changes will be sent to those who register requests for the same.

Vertical, Horizontal and Sloping Features of Construction. 5E

This section deals with **Walls, Chimneys, and Flues; Columns, Partitions, and Enclosures; Beams, Girders, and Floors; Ceilings and Roof Construction; Doors, Windows and Shutters; Wire-Glass and other Retardants; Roofs and Roof Coverings.**

Information Obtainable. 5E1

(*a*) This section combines the vertical structural features and horizontal and sloping features under 4C and 4D in the Structural Service Book, Vol. I, in which may be found, if desired, detailed descriptions of the contents, by chapters and sections, of the many publications which have been listed in this Serial Number under 5D1*p*1–13, all of which treat of the separate features enumerated at head of this section.

(*b*) See, also, the following subdivisions in the Structural Service Book in Serial Numbers which followed No. 4 last year and will be again treated later this year.
1. **Chimneys, Flues and Fireplaces,** Serial No. 10, H.
2. **Windows, Doors and Metal Trim,** Serial No. 11, B7.
3. **Floor Systems, Partitions, Furring,** etc., Serial No. 11, D3.
4. **Lathing and Plastering** (Metal Lath and Stucco), 11 D6.
5. **Wire-Glass, Roof Openings, and Vault Lights,** 12 F2.

(*c*) Bulletin No. 25, "*Public Works of the Navy*," under the cognizance of the Bureau of Yards and Docks and the Corps of Civil Engineers, U. S. Navy, January, 1917, gives:
1. "Report on Inspection of **Installation of Gypsum Slab Construction for Roofs and Floors,**" Geo. A. McKay, U. S. N.
2. "Report on **Loading Test of a Composition Floor** Made by the U. S. Bureau of Standards, Nov. 14, 1916," E. B. Rosa. Illus.

(*d*) See the *Quarterly* of the National Fire Protection Association:
1. **"Enclosures for Floor Openings,"** January, 1915.
2. **"Unit System of Wood Flooring for Fireproof Manufacturing Buildings,"** July, 1914.
3. **"Waterproofing Floors,"** April, 1914.
4. **"Asbestos Roofing,"** October, 1912.
5. **"Roof Covering Tests,"** July, 1910, and April, 1917.
6. **"Roof Coverings and Their Fire-Resisting Properties:"** Part I, "Introductory," W. T. Colyer; Part II "Methods of Testing Roof Coverings at Underwriters' Laboratories," G. W. Riddle and B. E. Blanchard. April, 1917. 16 pp.; illus.

(*e*) For **"Classification of Roofs and Roofings," "Fire-Protective Coverings for Window and Door Openings,"** and all other references applicable, see N.F.P.A. "*Index*."

(*f*) For information on the subject of **fire-wall divisions in buildings,** read Mr. Porter's paper mentioned under 5D2*e*3.

(*g*) See **"Fire Tests of Floors in the United States,"** Ira H. Woolson and Rudolph P. Miller. A completely illustrated paper giving detailed drawings and descriptions forming a record for the International Association for Testing Materials of all fire-tests obtainable upon all kinds of floors. 1912.

(*h*) For much valuable information on **suggested construction** and **floor-load developments,** read 1916 progress report of Committee on Basic Building Code A.I.A. (1A2*b*7).

(*j*) In *Journal of the Society of Constructors of Federal Buildings* (1A2*d*1) for May, 1915, is an address by Charles F. Hennig, describing "Gypsum Plasters," which includes reference to **floor-domes and partition-blocks.**

(*k*) The California Redwood Association has published "*Redwood for the Engineer*" and "*Specialty Uses of Redwood*," containing information on their fire-resistance, and use in **fire-door cores** and **slow-burning construction.**

(*l*) See **"Notes on Leakage of Air Through Windows,"** Bulletin Building Data League.

(*m*) See "Index" to *Lefax Data Sheets* for information on these subjects.

(*n*) The Committee on Fireproofing of the American Concrete Institute reported progress at annual convention, 1917, while awaiting results of the tests at the Underwriters' Laboratories.

(*o*) In connection with this section it will be of interest to read also the Section 5C, **Reports on Fire Tests of Materials and on Buildings under Fire.**

(*p*) For other information, see pages in the *Industrial Section* as follows:
1. **Industrial Housing and Efficiency,** Hydraulic-Press Brick Company, 2d cover.
2. Industrial Housing, **Metal Lath construction illustrated,** Associated Metal Lath Manufacturers, p. xi.
3. **Metal Lumber** and **Metal Lath** Construction, The Berger Mfg. Co., p. xix.
4. **Rolling Steel Doors and Shutters,** The J. G. Wilson Corporation, p. x.
5. **Steel Sash Counterbalanced Type,** David Lupton's Sons Company, p. xxvii.
6. **Metal Window under Test,** illus. and data, Underwriters' Laboratories, p. vi.
7. **"Almetl" Fire Doors,** construction detail, Merchant & Evans Co., p. xix.
8. **Wire Glass** and illustration, Mississippi Wire Glass Co., p. xxii.
9. **"Keystone Copper Steel,"** American Sheet and Tin Plate Company, p. xxiv.
10. **"Target and Arrow" Roofing Tin,** N. & G. Taylor Company, p. xix.
11. **Asbestos Roofing,** H. W. Johns-Manville Co., p. xxiii.
12. **Barrett Specification Roofs,** illus., The Barrett Company, p. vii.

Practice Recommended or Suggested by: 5E2

(*a*) *The American Society for Testing Materials:* **Committee C-5 on Fireproofing** reported to the Convention, June, 1917, two conferences which it had held with other technical societies for the purpose of **classifying fire-resistive construction** and **standardizing methods of conducting fire-tests.** Organizations represented were: A.S.T.M., N.F.P.A., U. S. Bureau of Standards, National Board of Fire Underwriters, Underwriters' Laboratories, A.F.M.F. Ins. Co's., American Institute of Architects, American Society of Mechanical Engineers, American Society of Civil Engineers, Canadian Society of Civil Engineers, American Concrete Institute. These conferences originated with the A.S.T.M. and N.F.P.A., as mentioned under 5D2*a*1, 1917, and accomplished their important objects, as enumerated in "Proceedings" A.S.T.M., 1917, Part 1, which see for report of Committee detailing, **"Classification of Materials and Construction," "Tentative Standard Time Temperature Curve for Fire-Tests of Building Construction"** and **"Tentative Amendments to Existing Standards,"** with diagram and details governing conduct of fire tests. In final revised form they

will be presented for adoption at the June, 1918, meeting of the Society. When adopted they will supersede the Standard Tests for Floor Construction and Partition Construction referred to under 5E3*e*.

(*b*) *National Fire Protection Association:*

1. See reports of certain committees referred to under 5D2*a*, which naturally cover **separate features** of construction.

Other committees, the reports of which should be read as relating specifically to this subdivision are:

2. **Protection of Openings in Walls and Partitions.**
3. **Roof Openings and Cornices** (5E1*b*5).
4. Read "*Index to all Subjects*," which is carefully cross-indexed for reference to those covered by this subdivision.
5. Examine contents of "*Field Practice*" (5D2*a*5).

(*c*) *National Board of Fire Underwriters:*

1. "*Building Code.*" Read index to same and see all sections and clauses relating to **walls, chimneys and flues, fire-doors, fire-windows** and **shutters, protection of openings, mill construction, fireproof construction,** and **fireproofing.**

See section on strength test for **floor construction** and **data on slope of floors** in mill construction and other floors for drainage of water.

See section on **skylight construction** and all others applicable to this subdivision.

2. "*Dwelling Houses.*" Read index to same. In addition to sections mentioned under 5D2*b*2, there are sections on **walls, chimneys, flues, and fireplaces,** with construction diagrams.

(*d*) *Inspection Department Associated Factory Mutual Fire Insurance Companies:*

1. "**Beltway Fires,** experience showing the urgent need of, and suggestions for providing non-combustible, sprinkled **enclosures for main belts.**"
2. "Prevention of Large Loss in a Mutual Mill," treats of **partitions, beltways,** and **protection.**
3. For drawings and recommendations, see "**Anchorage of Roofs.**"
4. "**Watertight Floors of Mill Construction**" contains also diagrams of flashings against walls and around columns.

(*e*) *The American Society of Mechanical Engineers:*

The Committee on Fire-Protection has prepared:

1. "**Floor Surfaces in Fireproof Buildings,**" by Sanford E. Thomson. Discusses type of floor surface and method of construction for office buildings, factories and institutional buildings.

(*f*) *The Associated Metal Lath Manufacturers:*

1. See *The Metal Lath Handbook* for detailed drawings of **beltway enclosures,** and **column protections,** with particular reference to details of construction recommended for **suspended ceilings.**

(*g*) *The National Lumber Manufacturers Association:*

1. "Heavy Timber Mill Construction Buildings" contains chapter on **Exterior Walls, Fire-Walls and Enclosures.**
2. See Technical Letters Nos. 4 and 5, August, 1916, "**Building Code Suggestions,**" with text and illustrations from N.B.F.U., recommendations.

(*h*) *The Elevator Manufacturers' Association of the U. S.:*

For **elevator shaftways** see "Uniform Regulations for the Construction and Installation of Passenger and Freight Elevators."

Standards Adopted. 5E3

(*a*) *By National Fire Protection Association:*

See reports of committees and publications listed under 5D2*a*, and before arranging for openings in walls or partitions, or constructing enclosures, light-shafts, roof-openings, ventilators, or cornices, a study should be made of the reports mentioned under 5E2*b*2 and 3, in conjunction with the regulations, specifications and standards below.

(*b*) *By National Board of Fire Underwriters:*

1. **Protection of Openings in Walls and Partitions.** The full title of this publication is "*Regulations of the National Board of Fire Underwriters for the Protection of Openings in Walls and Partitions against Fire. Recommended by the National Fire Protection Association. Edition of 1918.*"

This deals entirely with the installation of all such protection devices and does not cover the construction. The National Board of Fire Underwriters no longer issues "Rules and Requirements for the Construction and Installation of Fire Doors and Shutters," or "Rules and Requirements for the Manufacture of Wired Glass and the Construction of Frames for Wire and Prism Glass Used as a Fire Retardant," the construction being covered in the publications of the Underwriters' Laboratories.

2. See, also, "**Vaults,**" described under 5D2*b*6.
3. See, "**Skylights,**" being the Regulations of the N.B.F.U.

(*c*) *By the Underwriters' Laboratories:*

1. "**Specifications for Construction of Tin-Clad Fire-Doors and Shutters.**"
2. "**Hollow Metallic Window Frames and Sashes for Wired Glass.**" These are used as the rules for such construction by the N.B.F.U. and by most of the local underwriters.

Architects' specifications (unless referring to 5E3*d*1, which follows) should state that tin-clad fire-doors and shutters are to be constructed in accordance with the Underwriters' Laboratories' specifications and that they should comply with the rules and requirements of (name the local fire underwriters' association) and of the city of (name the city); tin-clad fire-doors and shutters should bear the label of Underwriters' Laboratories as evidence of such compliance or otherwise they must be accepted in writing by the local underwriters' association.

3. "**Standard for Counterbalanced Elevator Doors,**" (5K1*h*).
4. For mechanical appliances and materials inspected and labeled or approved, with names of the articles and manufacturers, see the following publications, also illustration of metal window-shutter under test on page vi of the Industrial Section.

(*a*) **List of Inspected Mechanical Appliances** (5K1*b*). This includes *Roof Coverings, Class A, Class B, and Class C,* and some thirty-three other materials, and systems.

(*b*) **List of Appliances Inspected for Accident Hazard.**

(*d*) *By Inspection Department, Associated Factory Mutual Fire Insurance Companies:*

1. "**Specifications: Tin-Clad Fire-Doors and Shutters.**"

NOTE.—Where "sheet metal" doors are used, they should be installed to comply with these requirements for tin-clad doors.

2. "**Approved Fire-Protection Appliances.**"

(*e*) *By American Society for Testing Materials:*

(Concerning proposed amendments to the following Standards, see 5E2*a*.)

"**Standard Tests for Fireproof Floor Construction,**" Serial Designation C2-08.

"**Standard Tests for Fireproof Partition Construction,**" Serial Designation C3-09.

(*f*) For **dividing of floor areas, types of partitions, stair enclosures,** and other features of **industrial buildings,** see "*Universal Safety Standards,*" 1914. Compiled under the direction of and approved by the Workmen's Compensation Service Bureau, N. Y.

Exits, Stairways and Fire-Escapes; Safety to Life, Slipping Hazards. 5F

Information Obtainable. 5F1

The attempt will not be made to describe within the limits of this subdivision the many phases of safety to life and prevention of accidents with which all in the building industry, including architects and owners, are concerned. As mentioned under 1C2*5*, it is the intention to present them in a later issue when the activities and publications, herein but touched upon, of important national organizations concerned solely with the subject of safety, will be mentioned at greater length.

These include The International Association of Industrial Accident Boards, American Society of Safety Engineers, National Safety Council, American Museum of Safety, which interests, with others, are also represented on the N.F.P.A. Committee on Safety to Life whose work is referred to under 5F2.

(*a*) National Safety Council, which has for some time past been **organizing a Building Contractors' Section,** issues *bulletins* and other publications dealing with structural practices, including *bibliographical bulletins,* among which is No. 371, "**Safety in Building Construction.**"

(*b*) The American Museum of Safety, which issues monthly bulletin, *Safety,* has not adopted or issued any standards relating specifically to building construction. The U. S. Central Safety Committee, on which the Museum's Director, A. H. Young, is serving as Secretary and Chief Safety Expert, is **formulating safety standards for building construction and equipment** which, as adopted, will be effective in the Government arsenals and navy yards.

(*c*) For valuable **statistics on the movement of crowds** of people on **stairways and ramps,** and for calculations used in proportioning **areas and exits** in connection with the planning of the Hudson Terminal Buildings, see paper "A Terminal Station," by J. V. Davies and J. H. Wells, read at convention of the American Institute of Architects, 1909, and published, with other papers, in separate form, from the "Proceedings" of that year under the title "*The Relations of Railways to City Development.*"

(*d*) For "**Entrance and Exit Calculations,**" see Proceedings N.F.P.A., Vol. 15, p. 257.

(*e*) For "**Life Hazards in Crowded Buildings Due to Inadequate Exits,**" H. F. J. Porter, see description under 5D2*c*3.

(*f*) See "**Horizontal Versus Vertical Exits,**" H. F. J. Porter. Reprinted from "Proceedings," First Industrial Safety Congress of New York state, December, 1916.

(*g*) See "**Planning School Buildings for Safety,**" C. B. J. Snyder. Address before N.F.P.A., 1916. "Proceedings," Vol. 20, p. 95.

(*h*) See "**Fire Danger in Schoolhouses,**" with illustrations and descriptions of stairs, and exits, furnished through Russel Sage Foundation, *Safety Engineering,* Vonnegut Hardware Co., and

C. B. J. Synder, by Miss May Ayres and F. I. Cooper. Reprinted from *American School Board Journal*.

(*j*) See description of **"Philadelphia Fire Escape Tower,"** N.F.P.A. *Quarterly*, Vol. 4, No. 4, and for the application of this **smokeproof tower** to **schoolhouses** for use as **service stairways**, see 5D1*d*11.

(*k*) For **"Fire Escapes,"** see N.F.P.A. *"Index."*

(*l*) See *"Kidder's Pocket-Book,"* 1916: **"Doors and Stairways**, with **Table of Treads and Risers,"** pp. 1565–1568. **"Tower for Stairways, Elevators**, etc.," p. 768.

(*m*) See *"Fire Prevention and Fire Protection,"* J. K. Freitag. **Stairways and Fire-Escapes; Fire Drills.**

(*n*) See *"Crosby-Fiske Hand Book of Fire-Protection."*

(*o*) See **"Planning the Schoolhouse against the Fire-Hazard,"** F. I. Cooper and H. F. J. Porter. Reprinted from *Better Schools Magazine*, December, 1915. Suggestions for state regulation. 8 pp.

(*p*) See *"Mechanical Engineers Hand Book*, 1916," Lionel S. Marks: **"Prevention of Accidents,"** D. S. Beyer, pp. 1382–1389.

(*q*) For papers, discussions, and resolutions on **"Fire Escapes," "Life Hazards," "Standards,"** and other subjects bearing on this subdivision and others, see *"Official Record of the First American National Fire-Prevention Convention."* Philadelphia, 1913. 541 pp.

(*r*) For additional data on subjects allied to this section, see *Structural Service Book*, Vol I, as follows:

1. **Wire-Glass Enclosures**, 12F2.
2. **Schoolhouses and Equipment**, 12G.
3. **Workmen, Industry, Safety to Life**, 12J.
4. **Stairways, Fire Escapes, Slipping Hazards**, 11B14.

(*s*) Also in the *Industrial Section* of this issue, see:

1. Data and illustration, "Feralun" **Anti-Slip Treads**, American Abrasive Metals Co., p. iv.
2. See references to data in the Industrial Section on **Doors, Windows, Wire Glass**, etc., under 5E1*p*.

Practice Recommended and Standards Adopted. 5F2

(*a*) *National Fire Protection Association:*

1. In connection with the planning of new buildings and altering old, attention naturally centers upon the important work of the **Committee on Safety to Life.** The reports of this Committee and discussions printed in the 1914, 1915, 1916, and 1917 "Proceedings" should be carefully read.

   Perusal of the reports, which are also separately published by the N.F.P.A., will disclose recommendations, calculations, statistics, and other data of great helpfulness, the 1917 report and discussion consisting of sixty-five pages, including diagrams and tables embodying the principle of **regulating occupancy** of buildings **by stair capacities**, and **class of construction** was tentatively adopted for final disposal at the 1918 meeting. Read 1918 Report as revised, shortened, and finally adopted.
2. See, also, **"Exit Drills for Factories, Schools, Department Stores and Theatres."**
3. Also **"Fire Protection in Schools,"** in which are illustrations of smokeproof school stairway with wired glass in metal frames, plans, diagrams, and rules of the New York Board of Education for safeguarding lives of school-children.
4. For **other structural features**, see "Specifications for Construction of a Standard Building," **"Stairways and Smokeproof Towers,"** and other reports of committees under 5D2*a*.

(*b*) *National Board of Fire Underwriters:*

1. *"Building Code."* Read index for all sections applicable.
2. *"Dwelling Houses."* **"Necessity for Secondary Exits,"** and **"Structural Requirements for Protecting Stairways and Shafts."**
3. For *Suggested Codes and Regulations* relating to other kinds of buildings, see 5D2*b*.
4. For *"Protection of Openings in Walls and Partitions"* and other **standards for structural features** see 5E3*b*.

(*c*) *National Safety Council:*

1. Article **"Preventing Accidents on Construction Work"** from the *Safety News* of the California Industrial Accident Commission.
2. Article **"Standardized Safety Principles in Factory Buildings,"** from *Preventive Appliances* for September, 1916.
3. Booklet embodying the **Safety Rules** issued by the Erection Department of the McClintock-Marshall Construction Co.

(*d*) *Workman's Compensation Service Bureau, New York:*
See *"Universal Safety Standards"* for **diagrams of stairways, exits, fire-escapes, and runways.**

(*e*) *Navy Department Specification* **"Safety Treads,"** Serial Designation 12T4*a*, March 1, 1916.

(*f*) **List of Appliances Inspected for Accident Hazard** (5K1*d*).

(*g*) See *Building Code, New York City*, referred to under 4D2*k*.

(*h*) See *Building Code, City of Philadelphia*, with provision for the original **smokeproof tower.**

Contents, Sprinklers and Other Protection Equipment. 5G

Current Activities; Information Obtainable. 5G1

(*a*) *Report of the Director, U. S. Bureau of Standards, 1917:*

1. The Bureau is coöperating with the National Fire Protection Association in **developing standard requirements** for the design and installation of **automatic sprinkler equipments**, including "dry pipe" systems which are used in buildings when the temperature falls below the freezing-point of water, and chemical sprinkler systems in which liquids other than plain water are used as the extinguishing agent and whose operation involves chemical reactions. The Bureau is also coöperating with this Association in establishing **standard specifications for pipes and pipe fittings**, and in encouraging the general adoption of the **National Standard Fire Hose Couplings.**
2. A revised edition of *Circular No. 50, "National Standard Hose Couplings and Fittings for Public Fire Service,"* has been published and there is evidence that municipal fire departments throughout the country appreciate more fully than ever before the advantages of **fire-fighting equipment** that is made **interchangeable** by the use of standard connections.
3. A report has been made to the Steamboat Inspection Service, embodying the results of an **examination and test** of seventy-five different makes of **hand fire extinguishers**, in compliance with a request from that Bureau. Included in these different makes were extinguishers of the **dry powder, soda** and **acid**, and **carbon tetrachloride types.** The various devices submitted have been classified, and the limitations and particular fields of service of each type have been outlined.

(*b*) The U. S. Bureau of Mines (2A3*c*) has published *Technical Paper No. 127*, **"Hazards in Handling Gasolene."**

(*c*) Much information pertaining to **sprinkler systems, piping, fittings**, and **water-supply features** will be found in the publications of American Water Works Association, which has a Committee on Private Fire-Protection Service, of New England Water Works Association, and others, the publications of which are described in the *Structural Service Book, Vol. I*, Serial No. 9, in which will also be found a complete Section on "Water-Supply, Storage, Utilization, and Incoming Pipes."

(*d*) For other information on all phases of sprinkler and other protection equipment, read *Index to all Subjects*, N.F.P.A., and read reports of committees in "Proceedings" referred to under 5G2*b*.

(*e*) See **"Water Distribution Systems and Fire-Protection,"** by G. W. Booth, descriptive of public water works and **valves, fire hydrants, service connections**, and **fixtures**, including those which furnish supply to sprinkler equipments and standpipes, N.F.P.A. *Quarterly*, July, 1917.

(*f*) For **"Sprinkler System and Heating, Combined,"** see N.F.P.A. *Quarterly*, Vol. 6, No. 3, also **"Heating Buildings with Sprinkler Systems,"** October, 1917.

(*g*) See *"Fire-Prevention and Fire-Protection,"* J. K. Freitag. Part VI.

1. **Auxiliary Equipment and Safeguards.**
2. **Sprinkler Systems.**
3. **Automatic Fire Alarms and Sprinkler Alarm and Supervisory Systems.**
4. **Simple Protective Devices**, Fire-Pails and Extinguishers, Paints and Solutions.
5. **Watchmen, Watch-Clocks and Manuals.**
6. **Standpipes, Hose-racks and Roof-nozzles.**
7. Inspection and Maintenance of **Fire-Protective Devices.**

(*h*) The *"Crosby-Fiske Hand Book of Fire-Protection"* will be found replete with **data, statistics, and suggestions.**

(*j*) In *"Mechanical Engineers Pocket Book,"* Lionel S. Marks, see **"Fire Protection,"** H. O. Lacount, pp. 1390–1393.

(*k*) Concerning jurisdictional matter involving **Underground Piping for Spinkler Installation**, see 9K1 in *Structural Service Book*, Vol. I.

(*l*) The subject of **corrosion of pipe** is completely covered in the same book under "Corrosion and Treatment of Metals" (11B2).

(*m*) **"The Fire Alarm System** of the City of New York," Putnam A. Bates, *"Proceedings"* of the Municipal Engineers of the City of New York, 1914. 18 pp.; illus.

(*n*) **Automatic fire-alarm systems** for the detection of fire have been devised and should be given consideration in connection with the installation of protection equipment.

Practice Recommended and Standards Adopted. 5G2

(*a*) *By the U. S. Navy Department:*
The Navy Department issues **specifications** in large number for materials, **installations, extinguishers** and other **apparatus and devices.** These include iron, steel, and wood and their

protection, mechanical systems and appurtenances, **metal furniture and lockers**—all of which are of interest and value in connection with buildings and their equipment. Read the "*Index to Specifications*" referred to in Structural Service Book, Vol. I, under 3A1*a*1 for titles and Navy Department serial numbers.

(*b*) *By the National Fire Protection Association:*

The work of its committees, chiefly those mentioned below, should be followed, and the reports and discussions printed in the "Proceedings" should be read and observed in connection with the Regulations of the N.B.F.U. recommended by the N.F.P.A.

1. On Safety to Life, referred to under 5F2*a*1.
2. On Fire Resistive Construction, see 5D2*a*1.
3. On **Manufacturing Risks and Special Hazards.**
4. On **Field Practice**, see Field Practice (5D2*a*5).
5. On **Automatic Sprinklers.**
6. On **Standardization of Pipe and Pipe Fittings.**

   The report in the 1917 "Proceedings" is entitled "American Standard Sprinkler Pipe Fittings" and is completely illustrated with diagrams; contains tables and all data.
7. On **Private Fire Supplies from Public Mains.**
8. On **Standard Hose Couplings and Hydrant Fittings.**
9. On **Standpipe Systems.**
10. For tanks and scuppers, see 5G3 and 5G4.
11. For discussions on **occupancy** of buildings and recommendations for **licensing**, see "Proceedings," 1916, pp. 195–201.

(*c*) *By the National Board of Fire Underwriters*, which have been adopted by and are also distributed by the N. F. P. A. Among them are:

1. "**Sprinkler Equipments—Automatic and Open Systems.**"
2. "**Fire Pumps (Steam).**"
3. "**Fire Pumps, Rotary and Centrifugal**, and Electrical Driving of Fire Pumps."
4. "**Steam Pump Governors and Auxiliary Pumps.**"
5. "**Signaling Systems** Used for the Transmission of Signals Affecting the Fire Hazard."
6. "**Tanks** (Gravity and Pressure), **Concrete Reservoirs** and **Valve Pits.**"
7. **Standpipes and Hose Systems.**
8. See "*Building Code.*" Section 193 treats of "**Standpipes for Fire Department Use;**" Section 194 of "**Standpipes for Private Protection;**" and Section 195 of "**Sprinklers.**"
9. See, also, *Dwelling Houses*, using its Index.

(*d*) *By Underwriters' Laboratories:*

For **mechanical appliances and materials inspected and labeled** with names of the articles and manufacturers, see "List of Inspected Mechanical Appliances" (5K1*b*).

(*e*) *By Inspection Department, Associated Factory Mutual Fire Insurance Companies.* Among them are:

1. "**Rules for Installing Sprinkler Equipments.**"
2. "**Approved Fire-Protection Appliances**" which see for all appliances or materials stipulated as approved.
3. "**Specifications for Rotary and Centrifugal Fire Pumps.**"
4. "**Specifications for Underwriter Steam Fire Pumps.**"
5. "**Rules for Dry Pipe Systems of Automatic Sprinklers.**"
6. "**Specifications for Fire-Hose, Play-Pipes and Hose-Houses**" from which is quoted:

   "For outside service the 2½-inch cotton rubber-lined hose should be used, and for inside the unlined linen, the 2½-inch for standpipe work and the 1¼-inch for small-hose equipment."
7. "**Specifications for Valves, Indicator Posts and Hydrants.**"
8. "**Specifications for Gravity Tanks and Towers.**"

(*f*) *By American Society for Testing Materials:*

1. Standard Specifications for **Welded Steel and Wrought Iron Pipe** (Serial Designation A 53-15).
2. Standard Specifications for 2½-inch **Cotton-Lined Fire-Hose** for Private Department Use (Serial Designation D 14-15).
3. Standard Methods for **Testing of Cotton Rubber-Lined Hose** (Serial Designation D 15-15).
4. Tentative Specifications for 2½-, 3-, and 3½-inch **Double-Jacketed Cotton Rubber-Lined Fire-Hose** for Public Fire Department Use (Serial Designation D 26-16 T).
5. Tentative Tests for **Cotton Fabrics** for Use in Hose, Belting, and Similar Articles (Serial Designation D 32-16 T).

(*g*) *By The American Society of Mechanical Engineers:*

1. See Index to A.S.M.E. Standards in "*Condensed Catalogues of Mechanical Equipment*," 1917, published by the Society. In this will be found a descriptive review and **enumeration and abstracts** of all **standards**, many of which, on pipe, threads, unions, gages, couplings, etc., are applicable here.

   The Committee on Fire-Protection has issued:
2. "**National Standard Hose Couplings and Hydrant Fittings for Public Fire Service,**" F. M. Griswold. It describes the necessity for such standardization and the great benefits to be secured.
3. "**Control of Automatic Sprinklers,**" Fred J. Miller.

(*h*) *By The National Association of Master Steam and Hot Water Fitters:*

See description of **illustrated chart**, "The 1915 **Standard Schedule of Flanged Fittings and Flanges**" under 10J5 in Structural Service Book, in which section, as well as under 9D, will be found sources of data on pipe of all kinds.

(*j*) *By The Workmen's Compensation Service Bureau:*

1. See "*Universal Safety Standards.*" A reference book of rules, drawings, tables, formulæ, data and suggestions with particular reference to **occupancy, fittings** and **protection equipment in industrial buildings.**

(*k*) See "Report of Committee on **Reinforced Concrete Standpipes**" in "*Proceedings*" of American Concrete Institute, Vol. 13, 1917.

(*l*) See "**Vaults,**" described under 5D2*b*6.

Scuppers, Inserts and Devices. 5G3

(*a*) For descriptions and detailed drawings of **scuppers**, see N.F.P.A *Quarterly*, July, 1910; also see *Quarterly*, October, 1915, and 1915 "*Proceedings*," as illustrating progress in the development of this feature of construction. In the 1917 "Proceedings," in report of Committee on Tanks, will be found several pages of "**Suggestions for the Installation of Scuppers,**" with diagrams of exterior and interior scuppers. The Report to the 1918 convention is submitted in the form of **Specifications for Scuppers.**

(*b*) See, also, **Field Practice**, Inspection Manual N.F.P.A.

(*c*) For detail drawings of scuppers see "**Watertight Floors of Mill Construction,**" A.F.M.F.I. Co's.

(*d*) Other details and description of **scuppers**, "*Kidder's Pocket Book.*"

(*e*) For information on scuppers, data as to sizes and requirements relative to floor area, see "*Building Code*" N.B.F.U.

(*f*) See "**Installing Equipment in Concrete Buildings**" (5D1*d*20).

(*g*) For "suggestions on **wall fastening devices**" see paper with that title read by Carrington McFarland before Society of Constructors of Federal Buildings in *Journal* (1A2*d*1) for March, 1916.

(*h*) For "**Devices and Materials**" see N.F.P.A. "*Index.*"

Tanks, Containers, and Reservoirs. 5G4

1. The "*Regulations of the National Board of Fire Underwriters for the Installation of Gravity and Pressure Tanks, Concrete Reservoirs and Valve Pits*" contain diagrams and standard specifications for **wood tanks**, frostproof **boxing of pipes, steel tanks and supports**, reservoirs, **tables of capacities**, and, throughout constitute valuable and trouble-saving standards to follow.
2. The same applies to the *Standard Specifications of the Inspection Department Associated Factory Mutual Fire Insurance Companies*, "**Gravity Tanks and Towers.**"
3. See reports in N.F.P.A. "*Proceedings*" of Committee on Tanks.
4. See, also, "**Elevated Tanks, Their Improved Design and Construction,**" N.F.P.A.
5. See, also, "*Field Practice*," N.F.P.A., for installation suggestions.
6. See, also, "*Building Code*," N.B.F.U., pp. 105, 195.
7. See "*Crosby-Fiske Handbook of Fire Protection*," for **Pressure Tanks**; also tables giving the **Capacity of Circular Tanks**; Horizontal Pressure Tanks; **Pressure Tanks** (air and water); **Height of Water** in Pressure Tanks; Relation of Water and Pressure in Pressure Tanks; and, **Weight of Cedar Tanks**, Emptied and Filled with Water.
8. For similar information, see, also, *Freitag*, *Kidder*, and others listed under 5D1*p*.
9. For tanks, containers, etc., for the storage of gasolene and liquids other than water, see:

   Standard Regulations, N.F.P.A. and N.B.F.U.
10. "**Dip Tanks, Construction and Installation.**"
11. "**Fuel Oil, Storage and Use**, and Construction and Installation of Oil-burning Equipments."

    See, also, Pamphlets, Associated Factory Mutual F. I. Co's.
12. "**Hazardous Liquids**, Containers for Storing and Handling."
13. "**Installations for Handling Gasolene** and Similar Oils."

Lightning Protection. 5H

(*a*) See Complete Section with this title in the *Structural Service Book, Vol. I*, under 4G, p. 55.

(*b*) In *The Farm Journal*, April, 1917, see "**Rods that Really Save Buildings,**" by C. E. Pim.

(*c*) See "**The Value of Lightning Rods,**" *Technical Letter No. 11 of the National Lumber Manufacturers Association*, December, 1917. Eight pages of recommendations, completely illustrated, also list of references and authorities, including many state fire marshals.

(*d*) The National Board of Fire Underwriters issues, "*Suggestions for Protection against Lightning*," as recommended by the N. F. P. A.

(*e*) See "**Standard (Tentative) for the Construction and Installation** of Materials for Lightning Rod Equipment," listed with other publications of the Underwriters' Laboratories under 5K1.

(*f*) The "*List of Inspected Electrical Appliances*," mentioned on page VI of the Industrial Section, contains the names of **manufacturers** of materials for **lightning-rod equipment** whose standard products are regularly **inspected** at the factories and **labeled** under the Underwriters' Laboratories' service.

Fire Insurance. 5J

1. The following paragraphs relating to **fire insurance** comprise *Article 21* of the *3d edition*, **Standard Documents** of the *American Institute of Architects* (1C1*a*), one of which consists of standard form for **Bond of Suretyship** (1C1*b*).

Art. 21. Fire Insurance.—The Owner shall effect and maintain fire insurance upon the entire structure on which the work of this contract is to be done and upon all materials, in or adjacent thereto and intended for use thereon, to at least 80 per cent of the insurable value thereof. The loss, if any, is to be made adjustable with and payable to the Owner as Trustee for whom it may concern.

All policies shall be open to inspection by the Contractor. If the Owner fails to show them on request or if he fails to effect or maintain insurance as above, the Contractor may insure his own interest and charge the cost thereof to the Owner. If the Contractor is damaged by failure of the Owner to maintain such insurance, he may recover under Art. 39.

If required in writing by any party in interest, the Owner as Trustee shall, upon the occurrence of loss, give bond for the proper performance of his duties. He shall deposit any money received from insurance in an account separate from all his other funds, and he shall distribute it in accordance with such agreement as the parties in interest may reach, or under an award of arbitrators appointed, one by the Owner, another by joint action of the other parties in interest, all other procedure being in accordance with Art. 45. If after loss no special agreement is made, replacement of injured work shall be ordered under Art. 24.

The Trustee shall have power to adjust and settle any loss with the insurers unless one of the contractors interested shall object in writing within three working days of the occurrence of loss and thereupon arbitrators shall be chosen as above. The Trustee shall in that case make settlement with the insurers in accordance with the directions of such arbitrators, who shall also, if distribution by arbitraton is required, direct such distribution.

2. It is the **common experience of owners** of buildings which have been damaged or destroyed by fire that, in the adjustment of their insurance, they have been obliged either to **forego competent expert advice or to pay the cost** of such advice themselves.

Through the efforts of the Louisiana Chapter of the American Institute of Architects, owners in that section of the country are now generally **insisting** that the **following clause shall be attached** to and form a part of all fire-insurance policies:

ARCHITECT'S OR ENGINEER'S FEE CLAUSE

"It is understood and agreed that this insurance also covers assured's liability for necessary fees for architects and engineers employed by them as a result of loss to the property insured, but in no case shall the loss and said fees combined exceed the amount of this policy, nor shall said fees exceed 6 per cent of the amount of the loss in case of a total loss, nor shall said fees exceed 10 per cent of the amount of the loss in case of a partial loss."

3. See, also, pamphlet **"General Information Regarding Fire Insurance Requirements,"** referred to under 5D2*h*; also distributed by N.F.P.A.

4. See **"Prevention Measures in Buildings versus Fire Insurance,"** F. S. Baker, N.F.P.A. "Proceedings," 1910.

5. See **"Self-Inspection by the Assured,"** N.F.P.A. "Proceedings," 1900.

6. **"The Influence of Fire Insurance upon Buildings and Their Architecture,"** Sir Aston Webb, from an address before the Insurance Institute of London, England, in N.F.P.A. *Quarterly*, April, 1918. 8 pp.

7. See **"Risks of the Lender on Mortgage in Fire-Hazard,"** Article by D. Everett Waid, architect, in *Fire Prevention and Control Supplement, The Evening Post*, N. Y., April 20, 1918.

Publications Available in the Files of: 5K

Underwriters' Laboratories. 5K1

(*a*) Organization, Purpose and Methods, 1917.
(*b*) List of Inspected Mechanical Appliances.
(*c*) List of Inspected Electrical Appliances.
(*d*) List of Appliances Inspected for Accident Hazard.
(*e*) Electrical Data.
(*f*) Specifications for Construction of Tin-Clad Fire-Doors and Shutters.
(*g*) Procedure for Inspections at Factories and Labeling Rubber-lined Fire-Hose.
(*h*) Standard for Counterbalanced Elevator Doors.
(*j*) Standard (Tentative) for the Construction and Installation of Materials for Lightning Rod Equipments.
(*k*) Code for Electrical Appliances, consisting of eleven standards, which will be enumerated in the next Serial Number (on electricity). Other standards are now in mimeograph form.

(NOTE.—(*a*) and (*f*) sent upon request; (*b*), (*c*), (*d*), and (*e*) revised semi-annually, sent upon request; (*g*), (*h*), and (*j*), also Nos. 1 to 11, inclusive, under (*k*), separate publications, supplied at $1 per copy; (*k*) complete, supplied at $10.)

Changes in, and additions to, publications listed in the *Structural Service Book, Vol. I*, under 3A3, 3A4, and 3A7, respectively, pp. 43–45, are as follows:

National Fire Protection Association. 5K2

(*a*) *Standard Regulations for Fire-Protection and Safeguarding of Hazards.* Add:
25. Standpipe and Hose Systems.

(*b*) *Suggested State Laws for Regulating Fire-Hazards.* No changes or additions.

(*c*) *Suggested Municipal Ordinances for Regulating Fire-Hazards.* No changes or additions.

(*d*) *Educational.* Add:
5c. Fire Prevention and Fire Protection During Construction, H. L. Miner. 5 cents.
5d. Safeguarding Industry, National Board of Fire Underwriters.
17c. Roof Coverings and their Fire-Resisting Properties. 5 cents.
23a. Water Distribution Systems and Fire Protection, George W. Booth. 5 cents.
23b. Flow Capacity of Water-Pipes, C. F. Wagner. 5 cents.
Omit Nos. 29 and 38 and substitute the following:
29. Fire-Tests of Building Columns, Underwriters' Laboratories.
38. Spontaneous Combustion, G. H. P. Walker. 5 cents.

(*e*) *Special Bulletins.* Add:
3a. Chimney-Cleaning and Extinguishment of Chimney Fires.
9. Are You a Patriot? Special bulletin urging the duty of every citizen to act as a fire warden of the nation.
10. Precautions against Freezing of Fire Appliances.

(*f*) *Special Fire Reports.* Add:
13. Pittsburgh, Pennsylvania, Conflagration, Jan. 27, 1917. 8 pp.; illus.; map. 5 cents.
14. Quaker Oats Co. Fire, Peterboro, Ontario, Dec. 11, 1916. 38 pp.; illus. 10 cents.

National Board of Fire Underwriters. 5K3

(*a*) *Suggested Regulations of the National Board of Fire Underwriters for the Installation of Devices, Recommended by the N.F.P.A.* No changes or additions.

(*b*) *Suggested State Laws.* No changes or additions.

(*c*) *Suggested Separate City Ordinances.* No changes or additions.

(*d*) *Suggested Codes.* No changes or additions. To the above add:
1. Safeguarding Industry—A Wartime Necessity. A 24-page book prepared for the Council of National Defence, replete with practical suggestions for reducing fire-loss.
2. Safeguarding Grain.
3. Safeguarding Cotton.
4. The Truth about Enemy Fires.
5. The Watchman Evil.
6. Safeguarding the House against Fire. A pamphlet intended as a textbook for children, and endorsed by the U. S. Commissioner on Education.

(*e*) Illustrated Report on the Atlanta Conflagration, May, 1917.

(*f*) As the Report of the N.F.P.A. Committee on Uses of Wood in Building Construction was adopted at the Convention on May 7–9 and covers Standard Specifications for Mill Construction, it will be printed by the N.B.F.U. for distribution as one of its publications.

Inspection Department, Associated Factory Mutual Fire Insurance Companies. 5K4

(*a*) *Pamphlets.* No changes or additions.

(*b*) *Leaflets.* Add:
50. Fire Hazard of Cutting Oil.

(*c*) *Reports.* No changes or additions.

General Index to Structural Service Department

Serial numbers will be published as subjects are covered. For complete classified index, see Structural Service Book, Vol. I

Acoustics. Page
Johns-Manville, H. W., Co. xxiii
Administration (General and Office). 1B
Asbestos Products.
Johns-Manville, H. W., Co. xxiii
Automatic Sprinklers.
Billiard Tables and Bowling Alleys. 4F
Boilers.
Smith Co., The H. B. xv
Branding and Trademarking of Timber and Lumber. 4B5
Brick. 3H
Hydraulic Press Brick Co. . . . 2d Cover
Broken Stone. 2D
Blue Prints.
New York Blue Print Paper Co. . . . xxxi
Cast Stone. 2B12
Cement and Concrete. 2B
Atlas Portland Cement Co. xiii
Atlas White Cement xxiv
Portland Cement Association . . . v
Chutes (Laundry).
Pfaudler Co., The xxii
Chutes (Mail).
Cutler Mail Chute Co. xxi
Composition Flooring.
Barrett Company, The vii
Conduits.
National Metal Molding Co. xxxiii
Contractural Relations. 1C
Cork Flooring.
Kennedy, Inc., David E. xxxiv
Corrosion and Treatment of Metals. Damp-Proofing. 1F
Doors (Metal). 5F
Merchant & Evans Co. xix
Wilson Corporation, The J. G. . . . x
Doors (Wood). 4E2
Curtis Companies, The xi
Electrical Fittings and Supplies.
National Metal Molding Co. xxxiii
Engineering Service. 1A
Corrugated Bar Co. xx
Estimation. 1D
Quantity Survey Co. . . . . 4th Cover
Corrugated Bar Co. xx
Excavation. 1E
Filters.
Loomis-Manning Filter Distributing Co. xxxi
Fittings (Steam, Plumbing, Gas).
Crane Co. xxxii
Flooring (Cork).
Kennedy, Inc., David E. xxxiv
Flooring (Wood). 4E4
Floor Hardener.
Sonneborn, L., Sons, Inc. . . . 3d Cover
Foundational Requirements, Concrete Piling, Steel Piling. 1E
Gas Appliances.
Humphrey Co. xxv
Glass (Stained).
Heinigke & Smith xix
Granite. 3C

Glass (Wire). 5E Page
Mississippi Wire Glass Co. xxii
Greenhouses.
Lord & Burnham Co. xxx
Gypsum. 5E
Hardware.
Hollow Tile. 3H
Inspection Service. 1A
Underwriters' Laboratories vi
Insulations.
Barrett Company, The vii
Johns-Manville, H. W., Co. xxiii
Interior Finish (Wood). 4E2
Curtis Companies, The xi
Laboratories (Testing and Research). 1A
Lath (Metal). 5E
Associated Metal Lath Manufacturers xi
Berger Mfg. Co., The xix
Lath (Wood). 4E3
Bishopric Manufacturing Co. iii
Laundry Chutes.
Pfaudler Co., The xxii
Lime and Hydrated Lime. 2C
Limestone. 3B
Indiana Limestone Quarrymen's Asso. xxxi
Lumber. 4B
Curtis Companies, The xi
Southern Pine Association . . . xvi–xvii
White Pine Bureau xxix
Mail Chutes.
Cutler Mail Chute Co. xxi
Magnesia Covering.
Johns-Manville, H. W., Co. xxiii
Marble. 3D
Metal Lath. 5E
Associated Metal Lath Manufacturers xi
Berger Mfg. Co., The xix
Mill Construction. 4E
Southern Pine Association . . . xvi–xvii
Monuments and Mausoleums.
Paints (Steel and Iron Preservative).
Barrett Company, The vii
Paints, Varnish and Enamel.
Barrett Company, The vii
Matheson Lead Co. xxviii
Paints (Waterproofing). 1F
Parquetry Work. 4E4
Piling (Concrete). 1E
Piling, Piers and Bulkheads. 4D
Pipe (Cast Iron).
Cast Iron Soil Pipe Makers' Association xiv
Pipe (Wrought Iron). 5A
Plastering.
Plumbing Equipment.
Crane Co. xxxii
Standard Sanitary Mfg. Co. xviii
Preservation of Iron and Steel.
Barrett Company, The vii
Preliminary Procedure. 1B
Quantity Survey. 1D
Quantity Survey Co. . . . . 4th Cover
Radiators (Steam).
Smith Co., The H. B. xv
Research. 1A

Roofing. 5E Page
American Sheet & Tin Plate Co. . . xxiv
Johns-Manville, H. W., Co. xxiii
Taylor, N. & G., Co. xix
Merchant & Evans Co. xix
Safety Devices. 5F
American Abrasive Metals Co. . . . iv
Sandstone. 3E
Sash (Steel). 5E
Lupton's Sons, David, Co. xxvii
Sheet Metal Cornices, Skylights, Ventilators. 5E
Lupton's Sons, David, Co. xxvii
Shingles (Wood). 4E3
Shutters (Rolling Steel). 5F
Wilson Corporation, The J. G. . . . x
Slate. 3G
Soapstone. 3F
Specifications and Drawings. 1C
Stains, Shingle.
Barrett Company, The vii
Cabot, Samuel, Inc. xxviii
Stair Treads.
American Abrasive Metals Co. . . . iv
Standardization. 1A
Stone Masonry, Broken Stone, Sand, and Gravel. 2D
Structural Steel and Iron. 1G
Stucco.
American Materials Co. xxviii
Atlas White Cement xxiv
Stucco Board.
Bishopric Manufacturing Co., The . iii
Terra Cotta. 3H
Tests. 1A
Tile (Mosaic).
Associated Tile Manufacturers, The . xxvi
Timber (Standing) and Manufactured Lumber. 4B
Tin Roofing. 5E
American Sheet & Tin Plate Co. . . xxiv
Merchant & Evans Co. xix
Taylor, N. & G., Co. xix
Treatment of Concrete Floors and Surfaces. 2B
Sonneborn, L., Sons, Inc. . . . 3d Cover
Treatment of Woods. 4C
U. S. Geological Survey. 2A
Varnish.
Barrett Company, The vii
Ventilation.
Lupton's Sons, David, Co. xxvii
Water-Heaters (Gas).
Humphrey Co. xxv
Waterproofing. 1F
Barrett Company, The vii
Whitewash (Gov't Formulas). 2C5
Windows (Metal). 5E
Lupton's Sons, David, Co. xxvii
Windows (Wood). 4E2
Curtis Companies, The xi
Wire Glass. 5E
Mississippi Wire Glass Co. xxii
Wood. 4B
Curtis Companies, The xi
Southern Pine Association . . . xvi–xvii
White Pine Bureau xxix

Classified Index to Industrial Section

Page
American Abrasive Metals Co. . . . iv
American Materials Co. xxviii
American Sheet & Tin Plate Co. . . xxiv
Associated Metal Lath Manufacturers . xi
Associated Tile Manufacturers, The . . xxvi
Atlas Portland Cement Co. xiii
Atlas White Cement xxiv
Barrett Company, The vii
Berger Manufacturing Co., The xix
Bishopric Manufacturing Co. iii
Cabot, Samuel, Inc. xxviii
Cast Iron Soil Pipe Makers' Association xiv
Corrugated Bar Co. xx
Crane Co. xxxii
Curtis Companies, The xi
Cutler Mail Chute Co. xxi
Heinigke & Smith xix
Humphrey Co. xxv
Hydraulic Press Brick Co. . . . . 2d Cover
Indiana Limestone Quarrymen's Asso. . xxxi
Johns-Manville, H. W., Co. xxiii
Kennedy, Inc., David E. xxxiv
Loomis-Manning Filter Distributing Co. xxxi
Lord & Burnham Co. xxx
Lupton's Sons, David, Co. xxvii
Matheson Lead Co. xxviii
Merchant & Evans Co. xix
Mississippi Wire Glass Co. xxii
National Metal Molding Co. xxxiii
New York Blue Print Paper Co. . . . xxxi
Pfaudler Company xxii
Portland Cement Association v
Quantity Survey Co. . . . . 4th Cover
Smith Company, The H. B. xv
Sonneborn, L., Sons, Co. . . . . 3d Cover
Southern Pine Association . . . . xvi–xvii
Standard Sanitary Mfg. Co. xviii
Taylor, N. & G., Co. xix
Underwriters' Laboratories vi
White Pine Bureau xxix
Wilson Corporation, The J. G. x

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